



HEM *harmonize*

SCIENCE

Grade VI

Integration of Values

Teacher's Manual



Teacher Manual for Integration of Values in Teaching Academic subjects

By

HEMA Foundation, Mumbai

Teacher Manual for Integration of Values in Academic subjects

SCIENCE

Grade VI

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Preface



It gives immense pleasure to all of us at HEMA Foundation in presenting the “Teacher Manual for Value Integration” from Grade I to Grade X to our beloved teaching fraternity in school education. Teachers are the corner stones in building the huge edifice for the student community and they are the driving force and guiding spirit to the society. Little will change in the society, if the teachers do



not make any efforts. We are all living in a scenario where value systems need to be integrated and enhanced through essential school subjects so that the students assimilate values into their regular habits effortlessly. There may have been innumerable reasons why values from the society are disappearing, but there cannot be two opinions about the significance of educational institutions in restoring the culture and values of the society. When they say, ‘values are to be caught’, it is leaving a high degree of moral responsibility on the part of our teachers and this manual is our humble effort to lessen that burden for them. This manual is not a substitute to the academic teaching lesson plan, but is a supplementary assistance to the academic text. Nevertheless, the teachers are at perfect liberty to choose and aptly use the learning materials/activities wherever they find it relevant. This manual would be of great use to the teachers as they are written by practicing teachers in the school system and after thorough research and therefore, the general difficulties of teachers such as completion of portions in the given time to teach the subjects etc are taken care of. In fact, some of the lessons have been written after seeing their practical applications in actual classrooms.

We all have a responsibility of creating a society that is driven by values and our younger generation is the key change makers in the society. They all must be inspired by our educational institutions and their teachers so that their intellectual development is supported and augmented by the value systems and culture. HEMA Foundation takes it as a commitment to the society in participating in this huge endeavor. Inviting all the stakeholders to this venture of spreading and integrating values into the learning environment of schools, with all humility, we remain always your well wishers

Thank You,

Mahendra

Mahendra Kabra
Managing Trustee

Anita

Anita Maheshwari
Trustee & Creative Director

Acknowledgement

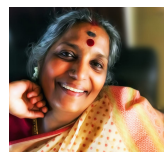
Welcome to HEMA Foundation's "Teacher Manual for Value Integration". I take this opportunity to thank each one of those who participated in it. At the outset I thank the Management of HEMA Foundation, its Managing Trustee Shri Mahendra Kabra and the Trustee and Creative Director, Smt. Anita Maheswari, for their unstinted support and cooperation in making this happen. Our humble pranams to the Senior most Member of HEMA Foundation Padmashree Shri Rameshwarlal ji Kabra, for his abundant blessings. The Associate Director Hetal Desai, the IT department Head, Shri Arvind Pandey, Shri Akash Shah and all other team mates from HEMA Foundation have contributed immensely toward realizing this manual.

There are several people outside the system who have supported this cause by giving their valuable comments and suggestions and my thanks are due to them as well. My sincere appreciations to the authors of this book who have been esteemed Principals, Section heads and Department heads and educators from reputed institutes of the country and they deserve the highest appreciation in envisaging the concept so well. My sincere appreciation to Dr. Shobana Nandakumar Nair, Mrs. Shobha Rajkumar, Mrs. Priya Cibi, Mrs. Sopna T. R and Rashmi Menon, for authoring the manual for Math, EVS, English and Science respectively. It was their untiring work and willingness to modify the documents as and when changes were required or further researches were needed, that this book was made possible.

As the Academic Director of HEMA Foundation and the person who has conceived this idea of value integration, I have gone through this document several times before presenting it to you and am fully aware of the significance of each word used in this document. I am sure the faculty who uses this manual would strictly adhere to the norms of the school Boards and the suggestions given over here. The Central staff of HEMA Foundation is more than willing to take your valuable suggestions and I promise that we shall be able to incorporate them if found suitable in our next publications.

I thank you for all your incredible commitment. All the credits if you find this document useful, would go invariably to all those who wrote the book and those who helped in the realization of the book and all those demerits if any, are purely due to my oversight. Believing that you would find it very useful in reaching out to the students and become inspiring teachers for our younger generations

I remain your sincere



Vijayam Ravi, PhD

Introduction

(must read before the teacher proceeds)

Its 'a Friday evening'. Everyone looks forward to a joyful weekend with family. After a weeklong work, it is a much-needed break. The school campus that was brimming with noises and screams of children, is silent and calm- The evening twilight has set in on the tall buildings, creating beautiful silhouettes. All have shut their tables; cupboards and the office of the school is closed. Principal and staff were slowly proceeding to the gate. They all wished each other a happy weekend. The peon is stepping out. Suddenly it happened. None expected the normal events that take place every day would take a turn so unexpectedly. School watchman came rushing to them to announce that there has been a riot in the city and he said he could see few students along with some other miscreants sabotaging public and private properties and hurting people on streets, hooting and howling. He added that it is not safe now to walk out. That the rioting group included their students as well. The miscreants included some of their old students too. And they were all those 'good' students when they were inside the school campus.

That left the teaching staff and the leaders stunned for a while. For a moment many of them looked at the school building just like that, which is their Almamater, and it stood so tall and elevated with a pride of creating thousands of glorious citizens in the past. Each one had a question mark in their eyes. None spoke. There was a dumb silence. Each one silently started replaying what they have been doing in the classrooms all along. There was an unbelief, inexplicable feeling reflected in their eyes. Did we make any difference to our students today? Did we teach our children to live or did we teach only Math, Science and language?

This is a serious question that all teaching faculty must ask themselves-

Did we teach subjects? Or did we teach children?

Professional standards for teaching academic subjects and transferring the right knowledge to the students have been the main objective of teaching all along, across the universe. All the latest teaching and learning revolutions that are happening in the classrooms and the students are evaluated for their skill development. Education is the vehicle for development of human being. Situations turned out to be grim when the pandemic engulfed the world with its outstretched arms. Every nook and corner of the world reeled under pressure with the pain and uncertainty that was caused by this pandemic. The ambiguity around, the uncertainty, complexity and insecurity around the schools was huge that none could fathom a way to come out of it. Teachers started looking toward blended learning in a hybrid classroom situation as a solution to reach students. All the more a reason for us, to do introspection about what we were doing till yesterday in the classrooms.

Yes, we taught our students Math, English, Languages, Social sciences, Sports, Music, Art and Craft and everything else-but values. We boasted ourselves as the top schools

with more students falling into the distinction list in terms of marks. Every year we sent out to the world, thousands of students with less skills and values but more of academics and marks. We were happy. Schools were happy. But we realize today that only some of those schools have been teaching students and not teaching subjects alone. Teaching subjects has a goal post and that is the academic credentials in terms of marks, but teaching students per say has another purpose altogether and that is -Touching their lives. We were confused and placing our balls in the wrong goal' posts. Result? The riots on the street, misbehavior, calamities, destruction, suicide and a valueless society in the making! Yes, certainly we imparted knowledge of academic subjects, however while this intellectual development is transmitted, there was room for us -the teachers for integration of values into these subjects. Few schools include moral science or value education in the curriculum and the teachers do teach the kids values like an academic subject and most of the schools assess the moral science in a written examination. It is very doubtful whether the students have really gained anything out of this process. Chances are bright that they end up considering the value education as just another subject. Teaching values through books was not a mistake, but assessing the children on marks was the issue. So, students when they completed their moral science examination, and received their 'pass marks', they quietly 'passed on' the values to the dustbins.

They say that the society's growth and degradation depend to a large extent the way the students are produced by the schools. The economic prosperity of a Nation depends to a large extent on living style and value systems of the society and there is every reason to believe that when the crime rate in a country goes high, the economic prosperity has declined in the society. The thinking, the culture of coexistence, working as teams and maintaining the art of tolerance, if these are removed from the society, it is very difficult to revive the Nation. India has been such a rich country with its values and it is a very painful scenario to watch how our younger generation is missing out on values. To a large extent the responsibilities can be passed on to the Macaulay's education system, parents and schools. If the schools make deliberate attempts to impart academic subjects and create excellence in that, the student's generation that gets molded out of the schools would certainly prove to be an asset in creating wealth and prosperity for the nation. However, if the schools do not impart values to the students, the nation will end up in a huge disaster after some time in terms of its moral fibre.. Wealth and success alone do not bring happiness to the society or an individual. Yes, it may bring some kind of satisfaction and one can always get a pleasure out of it. But very soon, this feeling becomes very transient and the mind would look for something else. This is human nature and it happens because the purpose of human life is not imparted to the students in schools. And when the assessment is done, that subject is also done.

Is this the purpose of education? Swami Vivekananda conceives education as the process where the innate potential of the human being is revealed. The innate nature of a human being is peace and joy. The riots on the street shows totally opposite virtues. Then where did the schools go wrong?

The riot on the street by students is not the debate here. It may be right or it may be wrong. The question is of larger dimension. It is of citizenry, safety, security and morality of a Nation, of the Globe! But why does such a behavior happen? Why do our students or our citizens behave in such an unruly manner that is a pain to others? When did our children or our citizens who passed out of the portals of our school, become so very intolerant? What is the fundamental cause for such an unrest in the minds of students, or generally speaking mankind as a whole? The intellectual quotient is very much in place. But when the spiritual quotient and emotional quotient are misplaced, the human beings sometimes behave weirdly. They lose cool, the power to think and act. Most often human beings react.

Did we, at schools, teach our students to act, or react?

Did we, at schools, teach the students values? Or imbue values in them?

Did we teach the students only subjects? Or did we touch their lives?

The Context to Value Integration with subjects:

It is in this context of these questions, that the thought of integrating values with academic subject teaching dawned. Education and values are no two different subjects. They are mutually interwoven. As a teacher, the biggest role is to prepare their students behave like human beings with all values intact. All academic subjects may give them an opportunity to excel in life, but the values learnt help them to live as human being. Since the teacher is an integral part of education and the inspiration in the life of the children, they have to turn toward integrating values while they teach subjects. Value integration does not mean quoting a value and discussing it, rather it is an effort to lead the students to see a personal meaning in whatever the teacher teaches in all subjects. It depends to a large extent on the creativity of the teacher to highlight the value that is hidden in all subjects, including the languages. Value means a person's personal principles or standards of behavior the judgement of how important that value is to him in his life. In nut shell we can say, "Value is a preferential behavior". What the teacher needs to do in class is to help the kids choose 'his/her preferential behaviour'

The fundamental shift that needs to happen here is this.

At the centre, is the value and all subjects are contributing to the stabilization of the value. Therefore, the teaching has to be intertwined with those values from the subjects and the teachers reach to the students in a very subtle way. Each Subject-be it Science, Math Or languages, or social science, or Non-academic subjects, have got something very fundamental to convey to the people who spend time to learn those subjects. And if we look at those subjects from a very objective perspective, we can clearly see what they are all dying to convey to the children. Math talks about precision, value of time, sharing caring, multiplying happiness and joy and several likes. Science talks about hard work and resilience and the will power to fail and still work hard to achieve. Languages give the

feelings of expression, love, compassion and what not. So, when a student goes out of the school portals, he would have assimilated within him values like precision, punctuality, rationality, truth, compassion, love, caring, sharing, determination, courage to fail, spirit of enquiry et etc. Along with similar such values, the content gets learnt by the kids.

What benefits do Value Integration bring to the students?

1. The students acquire several time honoured personal and collective values for life
2. Along with the cognitive development assured by modern education, integrating values in academic subjects prepares the children to develop their social and emotional lives
3. The approach of integration of values in teaching subjects, help the students enrich students' intellectually, physically, socially, morally, spiritually and artistically.
4. Schools can witness more of academic diligence with students showing increased attentiveness in the classroom and show capacity to do independent work
5. The school ambience also will see less of conflicting situations as the students start demonstrating greater empathy and responsibility
6. The student teacher relationships drastically improve and it becomes more trusting
7. Students feel a sense connectivity with others and belongingness

The argument

Teachers are the crucial ingredients in getting the values incorporated into the system and there is no two way about it. At present teachers are focused on completing their lessons on time amid all challenges and they do not have the extra time for doing any research for incorporating the lessons with values. Education and imparting values are no two different subjects. They are one. Additionally, thrusting a subject of value addition always attracts criticisms, primarily from the teaching community since they believe that it is an additional work and have to prepare more.

This argument is in place and cannot be ruled out and that is why HEMA Foundation pitches in for help.

What does HEMA Foundation offer to teachers?

This particular attempt from HEMA Foundation is to address this conflicting issue in education. HF is striving to reach out to teachers with ways and means to incorporate or integrate values while they teach academic subjects so that additional burden is not on them, while they address a major concern of education.

Values can never be taught, values can only be caught

Every subject has material knowledge that is needed for existence. What goes unnoticed more often is the subtle knowledge that the subjects try to convey. Any subject-Language, Math or science-all stand there for spreading virtues and values alongside the material knowledge. It is an integral part of learning the subject.

How and why are the values integrated by HF?

There is a very sound reason for HF to adopt the project of Value Integration into academic subjects and it is justified when any one reads the deliberations made in the NEP-2020 -NEP talks passionately about the integration of values, skills, and essential subjects to make the learning holistic. Let us refer to the clause 4.28, and it reads as follows: “Students will be taught at a young age the importance of “doing what’s right” and will be given a logical framework for making ethical decisions. In later years, this would then be expanded along themes of cheating, violence, plagiarism, littering, tolerance, equality, empathy, etc., with a view to enabling children to embrace moral/ethical values in conducting one’s life, formulate a position/argument about an ethical issue from multiple perspectives, and use ethical practices in all work. As consequences of such basic ethical reasoning, traditional Indian values and all basic human and Constitutional values (such as seva, ahimsa, swachchhata, satya, nishkam karma, shanti, sacrifice, tolerance, diversity, pluralism, righteous conduct, gender sensitivity, respect for elders, respect for all people and their inherent capabilities regardless of background, respect for environment, helpfulness, courtesy, patience, forgiveness, empathy, compassion, patriotism, democratic outlook, integrity, responsibility, justice, liberty, equality, and fraternity) will be developed in all students.”

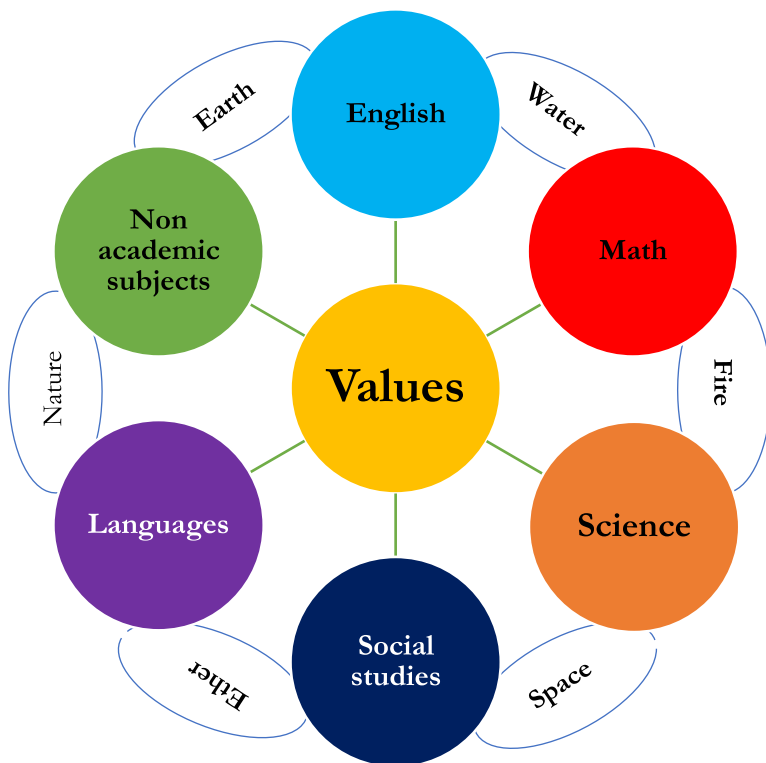
The new NEP and therein the NCERT insist on integration of values with essential subjects. Nature is the mother of all knowledge- Every learning that takes place with human beings is connected through the mind and intellect. While giving food for thought at the intellectual level, teachers have to supplement the emotional aspect through developing the mind. Mind develops by seeing, observations and hearing from sources that make sense to it. Human brain and human mind need to go hand in hand to make rational decisions and emotional attachments. If there are no emotions to any material knowledge learnt, it will remain a subject only. The love for the subject comes, when one extrapolates it to the application of it both at the material and emotional level. The emotional intelligence that gets originated while an academic subject is being taught is as powerful as the academic learning. Because it signals imagination and creativity and these are faculties associated with the mind. The rational brain which is provided with intellectual information about the academic subjects processes the knowledge with the help of the emotional brain-which is the mind. When no food is given to the emotional brain, it gets impoverished. Therefore, a balancing act needs to be done by teachers while imparting knowledge on academic subjects to incorporate the value or virtue that the subject is trying to convey to the reader or learner.

While the teacher teaches a topic ‘Patterns’ in Math, remember that the teacher has to touch the value of precision, discipline and punctuality. The whole universe gives us innumerable patterns and they all follow a certain order. That order brings discipline and it helps you see things in the right perspective. Similarly, the teacher, while discussing about geography, and earth in particular, what can be brought out is the virtue of evolution and the stability given by the earth. Earth is an evolved planet. The innate stability, the order, the growth and silence involved in this process are all virtues that can

be imparted to the students. On similar lines, the ecosystem, the biology, atmosphere, the plants, animals, air, water, aesthetics, and beauty-all talk about values and virtues of truth, tolerance and love, coexistence, interdependence, compassion and honesty.

Integration of values with academic subject teaching is an effort of HEMA Foundation to reach to the teachers with the varied ways of dealing with academic subjects and making it very interesting for the students to learn.

Whom does this manual serve?



The next thing that HF is trying to incorporate is Skills along with values. Skills are also considered to be an integral part of learning and hence while a value is highlighted the skills are also touched upon.

The additional advantage that teachers who use this manual of HF is that, the chart of the flow of lessons can be as such adopted in real teaching sessions without the need for doing a lesson plan again. The pattern of a school lesson plan used for imparting academic session is given incorporating the values integrated in it.

The perfect way of starting an academic lesson in a normal classroom situation so that the students get glued to the teacher's skills of teaching, is assured in the manual

through a context text-either by way of a story or an activity or discussion that rouses the interest of children

The description of the lesson ends with assignments for doing individually, at home or in class and this comes as a huge relief for the teachers

There is also a descriptive summary in the beginning of the text manual where in the topic, the core values, the skills and the activities that can be done and also the materials required for the same are all given so that the teacher gets a quick idea about how to go about the same.

HF, thus, is trying to travel that path of imbibing values to children along with the teachers!

Organization of the manual - How to read the manual?

The teacher will have to read and understand the manual as follows:

This teacher manual follows a certain structure that is not replacing the academic journal of the teacher. On the contrary, serves as an additional support as to how the teacher can link those values that are very relevant for a human life with the teaching of the subjects.

It has two parts:

A descriptive summary: this is a sheet in the beginning of each manual, showing what are the core values, sub values and skills that are linked with the topics and describes what activities can be undertaken to teach the values through subject integration and also shows what all education materials are required. Teacher has to glance through this to get a fair idea about how many values are integrated in total and understand this part first

The second part is the actual manual where the method of integration is dealt with the main academic concept.

The structure of the manual goes as follows: Start reading from introduction

1. **Introduction:** This gives what the lesson is about and what values, skills can be integrated here and the significance of it
2. **Learning objectives:** This plan talks about what are the academic and value driven objectives of learning the lesson
3. **Process and Action:** Here the way how the lesson has to be undertaken and it is shown in the form of a flow chart for quick understanding mentioning the activities at each stage. It starts with the context which actually serves as the introduction of the class to the new topic.
4. **Activities and related discussion:** Here the activities are dealt with in detail with discussion questions that lead to both academic and value driven integration. It is through these the teacher is able to deliver the total lesson effortlessly.
5. **Assignments:** Gives assignments that can be done individually, at home, or as group in the class.

The activities given can be chosen by the teacher as and when needed or as per the time available. It is not mandatory that the teacher does all activities.

Conclusion:

It is a proven fact that any particular value learnt becomes a habit when one practices it consistently. The purpose of integration of values with academic subjects is to learn the values along with the academic concepts and so whenever the academic concepts are tested, the value learnt is reiterated. The creativity and imagination of teacher make the lessons interesting to the students and HEMA Foundation presents this Value Integration Teacher Manual for the benefit of the teaching and student community.

Jai Hind

Conceived and presented by

Vijayam Ravi, PhD

Academic Director

HEMA Foundation

"वसुधैव कुटुंबकम्"

Vasudhaiva Kutumbakam ("vasudha", the earth; "iva", is ; and "kutumbakam", family). This Sanskrit phrase literally translates to mean that the whole world is one single family. The Sages have said that the entire world is truly just one family connected with thoughts, emotions, humanity and humility.



सर्वे भवन्तु सुखिनः सर्वे सन्तु निरामया ।
सर्वे भद्राणि पश्यन्तु मा कश्चित् दुःखभाग् भवेत् ॥

May all be prosperous and happy. May all be free from illness.
May all see what is spiritually uplifting. May no one suffer in anyway.
Om peace, peace, peace.



Vision

We aim to cultivate a conscious understanding of human values in individuals in order to help them coexist peacefully and harmoniously.



Mission

Our mission is to awaken the spirit of value based living in all individuals at school, organizational and community levels through well researched and structured programs resulting in a responsible, effective and harmonious existence for all



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Unit 1

Food- Where Does It Come From ?

Topic	Values / Life skills integrated & imbibed	Activities
Food- Where Does It Come From ?	<p>Core Values considered : Diversity, Gratitude, Interdependence, Share and Care</p> <p>Other Sub-Values: Kindness, Selflessness and Compassion</p> <p>Life skills: communication skills, presentation skills and confidence building</p>	<ol style="list-style-type: none"> 1. A game that make the children realise the diversity of food. 2. A seed germination activity, to make the children understand the selfless service of the plants. 3. This is a video demo that help the students understand the value of food and food scarcity in the world. 4. This is fun activity, a cookery show that will help to enhance the communication skills of the students

Materials / Resources needed

Act.3.A TV to show the video clipping or a computer and projector

Act,1.Chart paper and some grains and pulses to stick in the chart.

Description (of the points of discussion)

This chapter elaborates on the diversity of food items and the different sources of food.

The topics discussed are

1. The diversity of food and sources of food.
2. Differences between herbivores, carnivores and omnivores.
3. The fact that there is scarcity of food in the world and one should not waste food.
4. The importance of caring for others and sharing food with those who are hungry.
5. Appreciate the diversity of our culture and be grateful to the selfless service of plants.
6. The interdependence of plants and animals.
7. An interesting poem video is also discussed.

Unit 1**Food- Where Does It Come From ?
Diversity, Gratitude, Inter-dependence, Share and Care****I. Introduction**

Basic needs for human beings are food, clothing and shelter, among which the most important one for survival is food. Food consumed around the world are highly divergent with lot of variety across geographical localities. This chapter elaborates on the diversity of food items and the different sources of food.

While explaining this chapter, the teacher can throw light upon scarcity of food in this world and the significance of preventing food wastage. Children should be made to realize the fact that millions of people across the world are starving every day without proper food to eat. They should be educated about the significance of sharing food with the needy and about caring for the less privileged. They should also be made to recognize that all of us should be grateful to nature for providing us with food and water. They will start respecting every living being, when they realize that we are all interdependent on each other for our existence.

The core values focused upon are Diversity, Gratitude, Interdependence, Share and Care and sub values like Selflessness, Compassion and Respect.

II. Learning Objectives / Outcomes

Through this unit, the students will achieve the following grade appropriate academic and value-based goals.

- Appreciate the diversity of food in different parts of our country.
- Comprehend the various sources of food materials.
- Classify the source of food items i.e. from plants or animals. Be grateful to them for the selfless service they do and realise the interdependence of different species for survival.
- Distinguish between herbivores, carnivores and omnivores.

- Realize the fact that there is scarcity of food in the world and one should not waste food.
- Recognize the importance of caring for others and sharing food with those who are hungry. Imbibe values like kindness and compassion for all living beings.

III. Process & Action Plan

A teacher develops a strong bond with his / her students which lasts throughout the students' life. A good teacher can identify the hidden potential of a student, and nurture it. The teacher can be a pathfinder for the student and can guide him/her to success.

The values and life skills integration within this unit may follow the following process and action plan, as depicted in the flow chart below:

A. Introduce the context activity:

Poem video. Refer A



B. Carry out the varied activities in class (given below) in the sequence specified.



1. A game that make children realise the diversity of food.
Refer B.1.

2. This is a seed germination activity, to make children understand the selfless service of plants.
Refer B.2.

3. This is a video that helps students understand food scarcity in the world and the value of food.
Refer B.3.



C. Aid generalization of the concepts learnt, through assignments (given below).



1. This is a fun activity, a cookery show that will help to enhance the communication skills of students. Refer.C.1.

While it would be ideal to expose students to all the activities as given, and the discussion that would ensue, you may choose as per your convenience and availability of time, the activities that would be relevant to the content being taught and/or suited to the cognitive and emotional maturity of the students.

This topic incorporates the **core approach** - Knowing, Understanding, Valuing and Acting the values embedded in the topic.

The **core values** being considered are *Diversity, Gratitude, Interdependence, Share and Care and sub values like Selflessness, Compassion and Respect.*

The unit also provides the scope to develop the following life skills in the students like *communication skills, presentation skills and confidence building.*

IV. Activities & Related Discussion

A. The teacher can start the lesson with an interesting fun song whose link is given below which narrates the various ingredients in our daily food items.

https://www.youtube.com/watch?v=geHAaWbqz_Q&index=1&list=PL80CD1083E3892182

Credits : Ahlcon School

The children will enjoy this video and the poem which will make the study of this topic interesting for them.

B. Activities:

B.1. This is a game which can be played in the class. Each student can be given a chance to think about a food item he/she loves. Others have to identify the item by asking questions with yes or no answers. For e.g. they can ask questions like those give below.

- Is it sweet?
- Is it fried in oil?
- Is it a main course item?

This exercise can throw light upon the variety and diversity of food items available in our country.

This will make them appreciate the diversity of our culture.

B.2. This activity enhances the students' understanding on the sources of food.

Ask the children to bring a sapling of any germinated seed as shown in the figure below. They can germinate any seed at home and bring it. The teacher can give enough guidance



on how to do it and if needed the children can take the help of parents in this activity. Even potato sprouts or carrots sprouts can be brought.

In addition to the above activity the children can prepare a chart paper stuck with different types of grains and pulses used at home. The idea of this activity is to make them understand that plants are the major source of food for all living beings.

In this context the teacher can urge the children to be like plants, who do a selfless service by giving us food and oxygen. This will make them respect all living beings who help us to survive in this world. They will be filled with gratitude and will accept the fact that we are all interdependent on each other.

Things needed: Chart paper and some grains and pulses to stick on to the chart.

B.3. This is a home activity. Children can be given one week to observe the quantity of food wasted in their home. They can advise every member in their house not to waste food. They can be shown an inspiring video whose link is given below.

https://www.youtube.com/watch?v=ZQzOFqUli70&feature=emb_logo

This video will inspire students to be compassionate to others. They should be urged not to waste food and discourage others also from doing so; and share their food with people who are starving. One of the greatest services a person can do to humanity, is to provide food for the hungry.

V. Assignments

C.1. Cookery show:

This activity is a fun cookery show. Students can form teams of three or four members and do a cooking demo. They can select a simple dish, write the recipe and use paper pieces written with name of the ingredient instead of real ones. Then one or two of the members can demonstrate the making of the dish in the class. Make it as interesting and real as possible. The teacher can reward the best team if he/she wishes.

This activity will enhance the communication and presentation skills of the children and also help them enhance their confidence.

Resources

References:

- NCERT Class VI Science Textbook.
- Video courtesy: <https://www.youtube.com>
- Picture courtesy: www.theseedsmaster.com

Unit 2

Components of food

Topic	Values / Life skills integrated & imbibed	Activities
Components of food	<p>Core Values considered : Simplicity, Flexibility, Discipline</p> <p>Other Sub-Values: Self Control and Curiosity.</p> <p>Life skills: Judgement skills, observational skills and Practical knowledge.</p>	<ol style="list-style-type: none"> 1. A table making activity cum discussion 2. A guessing game that will throw light upon the various food items available and their nutritional aspect. 3. OA chart making activity which helps children to know in detail about the food they eat. 4. Home Assignment: Preparation of balanced diet which helps in improving judgement skills and practical knowledge

Materials / Resources needed

Act.1. Things needed: Chart paper and colour pens.

Act.2. Things needed: a large bowl, fruits, vegetables, grains and pulses etc.

Act.3. Things needed: Chart paper, colour pencils, pictures, glue etc.

Description (of the points of discussion)

The topics discussed are

1. The various types of nutrients that are present in food items like carbohydrates, proteins, fats, vitamins and minerals.
2. How to test for starch, fats and proteins.
3. Identify the role of each of the nutrients in our body and understand what is a balanced diet.
4. Know about the various deficiency diseases caused by malnutrition.
5. You do not need expensive food to get all the nutrients.
6. Why we should stay away from junk food and opt for simple food. Discipline and self-control should be practised in the case of eating habits also.
7. Know why you should be flexible in your food preferences and be ready to adjust with any kind of available food item.

Unit 2

Components of food Simplicity, Flexibility, Discipline

I. Introduction

Food is like fuel to our body. We have to make the right choice of food in order to maintain good health. Whatever we eat, in whichever form, should give our body all the necessary nutrients such as carbohydrates, proteins, fat, vitamins and minerals.

The teacher can explain the importance of a healthy balanced diet which will ensure that our body gets the right nutrients in the right quantities. It can be highlighted that you do not need very expensive food to get the right nutrition. Simple and easily available food items are always healthy than costly junk foods. Children can be asked not to eat junk foods which are often detrimental to good health. One should also be flexible in food preferences. Self-control and discipline are absolutely necessary to maintain good eating habits. Otherwise one may end up in deficiency diseases and/ or obesity.

The **core values** focused upon are *Simplicity, Flexibility, Discipline* and *sub values like Self Control and Curiosity*.

II. Learning Objectives / Outcomes

Through this unit, the students will achieve the following grade appropriate academic and value-based goals.

- Comprehend the various types of nutrients that are present in food items like carbohydrates, proteins, fats, vitamins and minerals.
- How to test for starch, fats and proteins.
- Identify the role of each of the nutrients in our body and understand what is a balanced diet.
- Know about the various deficiency diseases caused by malnutrition.
- Appreciate the fact that you do not need expensive food to get all the nutrients.
- Realise why they should stay away from junk food and opt for simple food. Discipline and self control should be practised in the case of eating habits also.

- Know why you should be flexible in your food preference and be ready to adjust with any kind of available food item.

III. Process & Action Plan

They may forget what you said but they will not forget how you made them feel.

– Carl Buechner

This quote is very true about a teacher. For a student a teacher is a mentor, who make them feel comfortable and enthused. The teacher is the one who nurtures the curious mind of children and encourage their creativity.

The integration of values and life skills within this unit may follow the following process and action plan, as depicted in the flow chart below:

A. Introduce the context activity:
General Discussion. Refer A



B. Carry out the varied activities in class (given below) in the sequence specified.



1. This is a table making activity cum discussion
Refer B.1.

2. This is a guessing game that will throw light upon the various food items available and their nutritional aspect
Refer B.2.

3. This is a chart making activity which helps children to know in detail about the food they eat daily.
Refer B.3.



C. Aid generalization of the concepts learnt, through assignments (given below).



1. Home Assignment helps in improving judgement skills and practical knowledge. Refer.C.1.

While it would be ideal to expose the students to all the activities as given, and the discussion that would ensue, you may choose as per your convenience and availability of time, the activities that would be relevant to the content being taught and/or suited to the cognitive and emotional maturity of the students.

This topic incorporates the **core approach** - Knowing, Understanding, Valuing and Acting the values embedded in the topic.

The **core values** being considered are *Simplicity, Flexibility, Discipline and sub values like self-control and Curiosity*.

The unit also provides the scope to develop the following life skills in the students like *judgement skills, observational skills and practical knowledge*.

IV. Activities & Related Discussion

A. The lesson can be introduced through a discussion on the diversity of food around the world and the different types of cuisines like Mediterranean, Chinese, Punjabi, South Indian etc. The teacher can explain that though all these differ in their flavour, taste, smell etc. they are all constituted by some basic ingredients and have the same type of nutrients.

B. Activities:

B.1. This is a table making activity cum discussion. The teacher can ask students about what food they had for breakfast. The teacher can point out that breakfast is the most important meal of a day, as it gives the energy required for the whole day after a long gap. Then he /she can highlight the significance of including items other than carbohydrates in the breakfast such as fresh fruits, pulses and milk. Children can be asked to prepare a table with the details of the food they had, its ingredients and main nutrients present in it. A sample of the table entry is given below.

Sl. No.	Item Name	Ingredients	Nutrients
1	Roti	Wheat Oil Salt	Carbohydrate Fat Mineral -Sodium

Children always have a tendency to skip breakfast and this is the right context the teacher can convince them that this is the worst thing they can do to their body. This will help children realise the importance of a healthy breakfast with nutrient rich clean food. They will now get interested in what they eat and also will be concerned about the nutrition aspect of their food. The teacher can also elaborate on the need for flexibility in food preferences. Children should be made aware that their food intake is for the stomach

and their body, and not for the tongue. Even if the food is not very tasty, one should not hesitate to take it if it is good for the body. Homemade food may not be as tasty as restaurant food, but it is always safer and healthier. One should be willing to adjust with the available food in a locality.

B.2. This is an interesting guessing game. The teacher can ask students to bring small quantities of various grains, pulses, fruits and vegetables from home. Each student can bring one item each. The teacher can collect all of them and put it in a large bowl. The students can come forward one by one. Blindfold the participant and then ask him / her to touch the items in the bowl and name them and also name the nutrient present in them. The one who correctly identifies the maximum number of items within 30 seconds will be the winner. The teacher can improvise the game if she wishes to do so.

This activity familiarizes students with different types of food materials and their nutritional value. This also conveys to them that you do not need a silver fork to eat good food. Locally available simple food is adequate for you to get all the nutrients. Junk foods that you eat, though costly, do not give you enough nutrients. On the contrary they are often harmful to your body and make you obese and unhealthy. Simplicity in food, is one key take away here. As the famous quote says you are what you eat. Simple food gives you a healthy mind and sound body. Foods with artificial flavours and additives harm not only the body but also the brain.

Things needed: a large bowl, fruits, vegetables, grains and pulses etc.

B.3. This is a chart making activity which enhances curiosity and observational skills. Students can be asked to find out 5 packed food items in their home. They have to prepare a chart showing details of the item and the ingredients given on the package. Children can decorate their chart with pictures or cutout of the labels, which they can bring from home, if possible. A sample is shown below.

This activity improves the observational skills of students as well as make them aware of the contents of the food items they are eating. They can identify the additives added to the item and understand the fact that some of them are harmful to our body. The next time they purchase a food item they will be curious to know its ingredients. This will dissuade them from eating unhealthy junk food. This will teach the importance of self-control and discipline in our eating habits.

Things needed: Chart paper, colour pencils, pictures, glue etc.

V. Assignments

C.1. Home Assignment:

This is an activity which the children can be asked to do at home. Children can prepare

a balanced diet for some members of their family depending on their activity, age, preferences etc. It should include only those food items that are available at home. He / She can also include the nutrients contributed by each food item. This activity improves the judgement skills and practical knowledge on food items.

Resources

References:

- NCERT Class VI Science Textbook.
- Thumb nail picture courtesy: www.foodwatch.com, www.nia.nih.gov, www.sfa.gov.sg

Unit 3

Fibre To Fabric

Topic	Values / Life skills integrated & imbibed	Activities
Fibre To Fabric	<p>Core Values considered : Gratitude, Simplicity, Creativity, Unity</p> <p>Other Sub-Values: Diversity and Harmony.</p> <p>Life skills: Creativity and Communication skills.</p>	<ol style="list-style-type: none"> 1. Chart making project that helps children to appreciate the diversity of fabric. 2. Video demo cum practical activity. that emphasizes unity and peace. 3. Creative writing activity which teaches gratitude. 4. Home Assignment This is survey activity that highlights simplicity.

Materials / Resources needed

Act.1.Things needed: Chart paper, pieces of different fabrics, colour pens

Act.2.TV set or Computer and projector to show a video demo

Description (of the points of discussion)

The points of discussion are the following:

1. The variety of clothing materials available like cotton, silk, wool, polyester.
2. Fabrics are made from yarns which in turn are made from fibre which may be natural or artificial.
3. The various stages of fabric making like spinning, weaving and knitting.
4. The role and influence of garments in one's personality. Simplicity and diversity are the key features of good clothes.
5. Appreciate the fact that a wonderful outfit is a creative art of a set of people and we should be grateful to them.
6. Weaving is a symbol of unity among the fibres, that render them as a strong fabric because of their strong bonding.

Unit 3**Fibre To Fabric
Gratitude, Simplicity, Creativity, Unity****I. Introduction**

Human beings have always been fascinated from a very long time by the act of draping their body with different materials. If it was initially for protection from extreme heat and cold, it later changed and became a symbol of one's status and attitude, and also representing unique cultures.

This chapter discusses about different types of clothing material and the multiple processes involved in the conversion of a fibre to a garment. This unit can educate students about the labour and effort involved in creating their beautiful outfits. They should feel grateful to all those who are engaged in the different stages of making of a garment. The chapter also conveys the diversity of materials used which can be observed to be appropriate to the respective culture and climate. One should be able to appreciate the creative minds behind all the great dresses we wear.

The core values focused upon are Gratitude, Simplicity, Creativity, Unity and sub values like Diversity and Harmony.

II. Learning Objectives / Outcomes

Through this unit, the students will achieve the following grade appropriate academic and value-based goals.

- Know about the variety of clothing materials like cotton, silk, wool, polyester etc..
- Realise that fabrics are made from yarns which in turn are made from fibre which may be natural or artificial.
- Know about the various stages of fabric making like spinning, weaving and knitting.
- Recognise the role and influence of garments in one's personality. Simplicity and diversity are the key features of good clothes.
- Appreciate the fact that a wonderful outfit is a creative art of a set of people and we should be grateful to them.
- Able to view weaving as a symbol of unity among the fibres, that render them as a strong fabric because of their strong bonding.

III. Process & Action Plan

A successful teacher is the one, who can bring a progressive change in the weakest student. The teacher should be empathetic, to identify the problems of a weak student and help him/her to overcome his / her drawbacks and guide him / her to success. A proper understanding and bonding is required between the student and the teacher for this to happen.

The values and life skills integration within this unit may follow the following process and action plan, as depicted in the flow chart below:

A. Introduce the context activity

Discussion. Refer A



B. Carry out the varied activities in class (given below) in the sequence specified.



1. This is a chart making project that helps children to appreciate the diversity of fabric
Refer B.1.

2. This is a video demo cum practical activity that emphasizes unity and peace
Refer B.2.

3. This is a creative writing activity which teaches gratitude
Refer B.3.



C. Aid generalization of the concepts learnt, through assignments (given below).



1. Home Assignment

This is survey activity that highlights simplicity Refer.C.1.

While it would be ideal to expose students to all the activities as given, and the discussion that would ensue, you may choose as per your convenience and availability of time, the activities that would be relevant to the content being taught and/or suited to the cognitive and emotional maturity of the students.

This topic incorporates the **core approach** - Knowing, Understanding, Valuing and Acting the values embedded in the topic.

The **core values** being considered are *Gratitude, Simplicity, Creativity, Unity and sub values like Diversity and Harmony*.

The unit also provides the scope to develop the following life skills in the students like *Creativity and Communication skills*.

IV. Activities & Related Discussion

A. The teacher can introduce the lesson by asking students about their favourite outfits. He/ She can point out at the wide variety of clothing options we have based on design, materials and prices. He/ she can convey to children that their dress is their first impression. If one wears a dirty and shabby outfit then people will not get impressed. This highlights the need for proper clothing ethics.

B. Activities:

B.1. This is a chart making project activity which the students can submit. The teacher can ask students to collect as many different types of fabric pieces as possible. This can include cotton, linen, wool, leather, nylon, jute etc. Now they can prepare a chart by sticking the piece of fabric along with the following details.

- What is it used for?
- Source: Plants/Animals / Manmade
- Which climate is suited for wearing it: Summer/Winter/Rainy season?
- Which category does it belong: cheap/costly/very costly?
- It absorbs water?
- Is it strong or weak?

This activity will be an eye opener for children onto the world of fabrics and clothing materials. They will start appreciating the diversity of materials available for making garments. The children can be made aware of the fact that every culture has had its unique clothing style. By looking at one's clothing, you can learn something about the way people think and feel. Preferred material of clothing differs from country to country, region to region based on many factors including climate. The styles reveal much about the people's culture and beliefs.

Things needed: Chart paper, pieces of different fabrics, colour pens.

B.2. This is a video demonstration which can be followed by practical demonstration of the weaving activity. Refer the link below which the teacher can use.

https://www.youtube.com/watch?v=AWLIy-Um7_0

The teacher can show the video and ask the children to try the demo. This will give them a hands on experience of weaving. The teacher can educate them that we the people of this country are like the warp and weft of our nation. Like the weft and warp of the loom, if we live in harmony the nation will be stronger. We should always be united to make this nation proud and powerful just like the fabric which is stronger than the individual fibres. If the fibres are ripped apart, the fabric will lose its strength.

B.3. This is an interesting creative writing activity. The teacher can ask the students to write the auto biography of a dress of theirs. They can start from its origin and how it reached you finally. This will enhance their creative and imaginative skills and also help them to understand the various stages in the making of an outfit. The teacher can urge them to be grateful to all those people who were behind the making of such a dress for them and also should ask them to appreciate the creative minds behind them.

A sample writeup of the same is given below.

My friends and I lived in the black cotton soils of the Deccan Plateau. My master loved us all and pampered us as though we were his children. When the time came, I bore many small closed cups with white woolly substance inside. My master became extra careful about me. He would come near me, touch me, look at me with love and happiness, which showed on his face. I loved him too until one fine morning, he came with his family and detached me from the plant. I lay as a white woolly thing separated from the cups. His family took out black seeds from me and cleaned me. This process, called winnowing was extremely painful. As if this were not enough, the farmer sold me to a cotton merchant after winnowing. I was scared to leave my home but there were none who cared about my feelings. Our new master took me to a mill where there were various machines for various purposes.

First and foremost, I was put on a spindle and changed into yarn. Next, the man sitting on the loom wove me into a cloth. By now, I looked entirely different and for the first time, I liked my looks

I now waited eagerly to see what else was in store for me...Next came the coloring and dyeing. I was dyed a beautiful Royal Blue Another man printed flowers on me to add to my beauty. This was the second time I felt happy to see myself. I looked bright and charming. From this coloring and printing department, they sent me into a shop where various other cloth rolls were kept. A city dealer had bought me and I had yet another master!

But I could not stay with the dealer and in his shop for long...A pretty looking girl came to the shop with her mother and bought me for quite a handsome amount. For the first time, I realized my value had changed so much. The girl gave me to a tailoring shop

which was a very frightening place. I was scared of big scissors and pointed needles. Oh! how I wished my old master and his tender care! How I wished to go back to him but in vain...The tailor cut and sewed me into a beautiful dress with frills and laces. The girl wore me on her birthday. The party was nice and everybody appreciated the dress. That was me and I was happy...

Courtesy: <http://myriadintellections.blogspot.com/2013/07/autobiography-of-dress-creative-writing.html>

Note: The teacher is free to change the mode of this activity as a story narration and discussion, if he /she wishes.

This task also helps to improve the creativity and communication skills of children.

V. Assignments

C.1. Home Assignment:

Children can be asked to do a survey of their wardrobe and find out how many outfits they are having and of what fabric. They can also find out how many times they have worn each of them and how many are sparingly used. This activity throws light upon how extravagant we are. They can be informed about the value of simplicity and how they can donate their extra and sparingly used clothes to the poor and needy. This will help to inculcate the values of simplicity and generosity in them .

Resources

References:

- NCERT Class VI Science Textbook.
- Video courtesy: https://www.youtube.com/watch?v=AWLIy-Um7_0
- Autobiography courtesy : <http://myriadintellections.blogspot.com/2013/07/autobiography-of-dress-creative-writing.html>

Unit 4

Sorting Materials into Groups

Topic	Values / Life skills integrated & imbibed	Activities
Sorting Materials into Groups	<p>Core Values considered : Unity in Diversity, Respect, Self Realization.</p> <p>Other Sub-Values: Discipline and Cleanliness.</p> <p>Life skills: Judgement skills, discretionary skills, observation skills,, concentration and coordination skills ,and comprehension skills</p>	<p>Act.1.This is a story-based discussion that helps the students to understand the importance of choosing objects for a use, based on their characteristics.</p> <p>Act.2.This is a relay game meant for making students understand the methodology of sorting.</p> <p>Act.3.This is a guessing game that helps to identify similarities and differences of materials.</p> <p>Home Assignment is a chart making activity that helps to improve observation and comprehension skills.</p>

Materials / Resources needed

Act.2.-Things needed: Objects which the students can bring from home (Try to avoid harmful and dangerous objects which are not allowed in school like sharp objects, inflammable materials etc.), some bins for keeping the objects and a stop watch.

Home Assgnmt: Chart paper,Colour pens.

Description (of the points of discussion)

This chapter discusses the following points:

1. Many objects are made up of the same materials, though they are different in shape and size.
2. Identify similarities and differences of materials and develop the ability to choose the best material for a given purpose. This is similar to identifying one's potential and passion, as well as setting goals.
3. The idea of unity in diversity and develop respect for others. Although objects appear different from outside, ultimately, they are made up of the same material.
4. Develop the habit of sorting and organizing things, in our day to day life and appreciate the advantages of doing so.
5. Practice virtues like self-discipline and cleanliness in daily life, by categorizing things and arranging them accordingly.

Unit 4**Sorting Materials into Groups
Unity in Diversity, Respect, Self-realisation****I. Introduction**

We see different objects around us, with diverse shapes and sizes, made of different materials. This chapter highlights the significance of classifying materials based on their characteristics like lustre, hardness, solubility, transparency etc. Students can be made to realise the fact that, classification based on similarities and differences can help in simplifying the study of these materials.

While teaching this chapter, the teacher can emphasize the idea of unity in diversity, by pointing to the fact that most objects are made up of the same materials. The teacher while explaining the topic, can convey that classifying objects based on their characteristics helps us to choose the most appropriate material for a particular use. The art of sorting and organizing materials can help to keep our surroundings clean and also make our life easy.

The core values focused upon are Unity in Diversity, Respect, Self Realization and associated sub values like Discipline and Cleanliness.

II. Learning Objectives / Outcomes

Through this unit, students will achieve the following grade appropriate academic and value based goals.

- Realise that many objects are made up of the same materials, though they are different in shape and size.
- Learn how to classify objects based on various characteristics like appearance, hardness, solubility, density, transparency etc.
- Identify similarities and differences of materials and develop the ability to choose the best material for a given purpose. Realise the fact that it is similar to identifying one's potential and passion, as well as setting goals.
- Appreciate the idea of unity in diversity and develop respect for others. Although objects appear different from outside, ultimately, they are made up of the same material.

- Develop the habit of sorting and organizing things, in our day to day life and appreciate the advantages of doing so.
- Practice virtues like self-discipline and cleanliness in daily life, by categorizing things and arranging them accordingly.

III. Process & Action Plan

A good teacher should not just pour knowledge to students, but should produce spark to light the fire of their imagination. He /She should sow the seeds of curiosity in the minds of children, so that such thinking can evolve into fruitful thoughts and theories.

The values and life skills integration within this unit may follow the following process and action plan, as depicted in the flow chart below:

A. Introduce the context activity:
Discussion. Refer A



B. Carry out the varied activities in class (given below) in the sequence specified.



1. This is a story-based discussion that helps the students to understand the importance of choosing objects for a use, based on their characteristics.
Refer B.1.

2. This is a relay game meant for making students understand the methodology of sorting.
Refer B.2.

3. This is a guessing game that helps to identify similarities and differences of materials.
Refer B.3.



C. Aid generalization of the concepts learnt, through assignments (given below).



1. Home Assignment helps to improve observation and comprehension skills Refer.C.1.

While it would be ideal to expose the students to all the activities as given, and the discussion that would ensue, you may choose as per your convenience and availability of time, the activities that would be relevant to the content being taught and/or suited to the cognitive and emotional maturity of the students.

This topic incorporates the **core approach** - Knowing, Understanding, Valuing and Acting the values embedded in the topic.

The **core values** being considered are *Unity in Diversity, Respect and Self-realisation and sub values like Discipline and Cleanliness.*

The unit also provides the scope to improve the *judgement skills, discretionary skills, observation skills,, concentration and coordination skills , and comprehension skills.*

IV. Activities & Related Discussion

A. The teacher can start the lesson by asking children to observe the things around them. He/ She can ask them to prepare a list of items around them and group them according to the materials they are made of. This will help them to realise that most of the objects are made of the same materials though they differ in their shape, size, colour etc.

The teacher can explain to them that here you can see unity in diversity. It may appear that every object is different from the other, but they may be constituted with the same materials. Children can be made aware of the fact that though every person around them look different, speak different languages, have a different culture, ultimately we are all the same. We all have the same constituents, are made up of the same materials, and have the same feelings. Children should be encouraged to appreciate the fact that amidst all the differences we are all one and connected. This will help them to respect all others though there are apparent differences in colour, gender, culture, race and religion.

B. Activities:

B.1. This is a story narration cum discussion activity. The teacher can narrate the story given below which is an English fairy tale which underscores the importance of choosing the right materials for the right application based on their characteristics.

Once upon a time there lived an old mother pig, who had three little sons. When the three little pigs became old enough to seek their own fortunes, she asked them to build a house of their own and move out. All three of them set out for finding a good material for building a house. They came across a grass field. The first little pig decided to go for a grass house which was easy to build. The second one chose to build the house with sticks. The third pig wanted a strong and reliable shelter. So, he chose brick and mortar to build his house. Though the third pig had to do a little harder work, the house he built was strong. Then came a wolf who was very hungry and was searching for food. He saw the pigs inside the houses. He could easily blow away the grass and stick house., but could not

break the brick one. The other two pigs took shelter in the third one's house and all three of them were saved.

The following questions can be given for discussion.

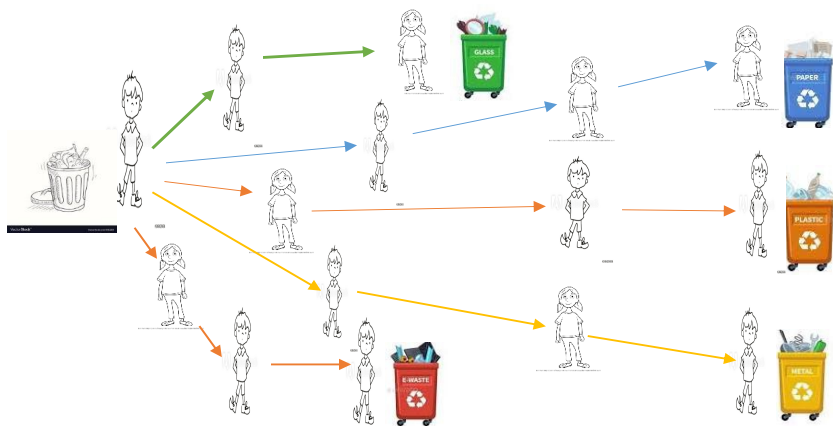
- What made the third pig choose brick over grass and sticks?
- Why did the fox fail to catch the three pigs?
- Why is it important to know the characteristics of materials you choose, for a specific purpose?

The story conveys the message that one should understand the characteristics and suitability of every material one chooses for a specific purpose. Here the pig who chose the strongest material could build a strong house that protected him from enemy. Same is the case with goal setting. One should identify one's potential and passion, so that one can set a realistic ambition, that can be achieved with those strengths. This is what is called self-realization. Children can be urged to set realistic goals which they are capable to achieve, by developing their inner potential.

B.2. This activity is a relay game which can be played in the classroom. The game has to be played as given below.

- Divide the students into three or four groups. Keep three or four bins with the name of a material on it, at different corners of the class room.
- The teacher can ask the students to bring as many objects, made up of different materials, from home and keep it in a large bin.
- The leader of the team can then stand near the main bin. One member of the team can stand near each corner bin. There can be a chain of two to three team members between the leader and the bins in different directions.
- The leader has to pick objects one by one and decide, to which chain he has to give it, based on the material that constitutes it.
- Then he will pass it on to the first person in the chain, which in turn will then be handed over to the next person and then to the next, until it reaches the corresponding bin.
- Each student in the chain can check whether it is the right chain for the object based on its material of construction. If he/she finds that the material is not meant for that chain he has to return it back to the leader through the chain. It should be noted that the leader can pick the next item only after the previous object reaches a bin.
- The team that sorts the maximum number of objects correctly in one minute will be the winner.

The layout diagram has been given here for clarity. This activity not only helps in understanding how to sort materials, but also helps in enhancing organising, coordination and concentration skills.



Things needed: Objects which the students can bring from home (Try to avoid harmful and dangerous objects which are not allowed in school like sharp objects, inflammable materials etc.), some bins for keeping the objects and a stop watch.

B.3. This is a guessing game. The teacher can give secretly, the names of some objects like stone, newspaper, cartons, pen, pencil, screw etc. to each student. Now ask each one of them to come forward. Others can ask the following questions in any order and thus guess the object. Only the questions like those given below can be asked.

- Is it a solid, liquid or gas?
- Is it hard or soft?
- Is it transparent, translucent or opaque?
- Is it breakable or not?
- Is it soluble or insoluble?
- Does it float or sink?
- Does it shine or not?
- Is it made of metal or plastic?

The teacher can decide on the objects, preferably those which students are familiar with and the type of questions. This game helps them to identify the similarities and differences of materials and appreciate the diversity of materials. This also enhances the judgement and discretionary skills of students.

V. Assignments

C.1. Assignment:

The students can be asked to prepare a chart with names of five materials with the details as given below.

Name of the Object	Material	Hard/Soft	Soluble/Insoluble	Transparent / Translucent / Opaque	Float/Sink in Water
Ball	Rubber	Soft	Insoluble	Opaque	Float

The students will be encouraged to observe objects around them and study them in more detail. This assignment improves their observation and comprehension skills.

Resources

References:

- NCERT Class VI Science Textbook.
- Story credit: <https://americanliterature.com/childrens-stories/the-three-little-pigs>.
- Thumbnail picture courtesy: www.stock.adobe.com, www.getdrawings.com, www.canstockphoto.com, www.istockphoto.com, www.graphicriver.net, www.vectorstock.com

Topic	Values / Life skills integrated & imbibed	Activities
Separation of Substances	<p>Core Values considered: Self-realisation, Simplicity, Inner peace and Harmony</p> <p>Other Sub-Values: Integrity and Environmental Awareness.</p> <p>Life skills: Listening and comprehension skills</p>	<p>The lesson can be introduced by giving daily life examples of separating substances.</p> <p>Act 1.This is a demonstration cum discussion which tells the students the need for .simplicity in life</p> <p>Act 2.This is a demonstration cum discussion on sedimentation and how it can be compared to a peaceful mind.</p> <p>Act 3.This is a story narration cum comprehension activity.</p> <p>Home Assignment is a project study that helps to improve the environmental awareness of the children.</p>

Materials / Resources needed

Act 1.-Things needed: pieces of paper, some heavy objects like eraser, small pebbles, scale, cardboard etc.

Act 2.Things needed: Glass beaker with water, mud and a stirrer

Description (of the points of discussion)

This chapter deals with separating substances from mixtures. The important things in this chapter are:

- 1) The different methods used for separation of substances like handpicking, threshing, winnowing, sedimentation, decantation, evaporation, condensation, filtration etc. and why it is needed.
- 2) Identify which method / methods to be used to separate different types of mixtures based on their properties.
- 3) The nature of water as a solvent and saturation level of the solution.
- 4) Correlation of the moral values like positivity, inner harmony and peace, flexibility, tolerance with each of these methods of separation.
- 5) The importance of keeping calm and composed to make your mind clear, as demonstrated in the process of sedimentation and decantation.
- 6) Identify the good and bad thoughts in the mind and filter out the bad ones and keep the mind peaceful and stable with positivity.

Unit 5**Separation of Substances****Self-realisation, Simplicity, Inner peace and Harmony****I. Introduction**

We come across different types of substances in our daily life. Some of them may be in pure form whereas some may be mixtures. Sometimes we may have to separate the components of a mixture due to many reasons. Some components may not be useful while some others may be harmful too.

This chapter touches upon the various methods of separation of substances based on the characteristics of the mixture like winnowing, filtration, sedimentation etc. The teacher can highlight certain life lessons. Students can learn from these methods and connect it to daily life situations.

The core values focused upon are Self-realization, Simplicity, Inner peace and Harmony and sub values like Integrity and Environmental Awareness.

II. Learning Objectives / Outcomes

Through this unit, the students will achieve the following grade appropriate academic and value-based goals.

- Realise the need for separating substances from mixtures.
- Comprehend the different methods used for separation of substances like handpicking, threshing, winnowing, sedimentation, decantation, evaporation, condensation, filtration etc.
- Identify which method/ methods to be used to separate different types of mixtures based on their properties.
- Understand the nature of water as a solvent and saturation level of the solution.
- Correlate the moral values like positivity and inner harmony and peace with each of these methods of separation.
- Appreciate the importance of keeping oneself calm and composed to bring clarity to one's mind, as demonstrated in the process of sedimentation and decantation.
- Identify good and bad thoughts in the mind and filter out the bad ones thereby keeping the mind peaceful and positive.

III. Process & Action Plan

A good teacher should be empathetic, treating each student as a separate individual. He /She should be able to understand what the child is going through in his / her daily life. The teacher should make learning an experience, by engaging the class in activities that interests them and also discover the various hidden talents. This means a teacher should be creative and experimenting.

The values and life skills integration within this unit may follow the following process and action plan, as depicted in the flow chart below:

**A. Introduce the context activity: Discussion.
Refer A**



B. Carry out the varied activities in class (given below) in the sequence specified.



1. This is a demonstration cum discussion which tells the students the need for simplicity in life Refer B.1.

2. This is a demonstration cum discussion on sedimentation. Refer B.2.

3. This is a story narration cum comprehension activity Refer B.3.



C. Aid generalization of the concepts learnt, through assignments (given below).



1. Home Assignment is a project study that helps children to improve their environmental awareness. Refer.C.1.

While it would be ideal to expose the students to all the activities as given, and the discussion that would ensue, you may choose as per your convenience and availability of time, the activities that would be relevant to the content being taught and/or suited to the cognitive and emotional maturity of the students.

This topic incorporates the **core approach** - Knowing, Understanding, Valuing and Acting the values embedded in the topic.

The **core values** being considered are *Self-realization, Simplicity, Inner peace and Harmony and sub values like Integrity and Environmental Awareness.*

The unit also provides the scope to develop the following life skills in the students like *Listening and comprehension skills.*

IV. Activities & Related Discussion

A. The lesson can be introduced by giving daily life examples of separating substances using different methods. The tea leaves separated from tea, small stones picked up from rice and other grains, removing husk from grains by winnowing etc are some of these. A discussion can be initiated on the instances of separation of materials in our day-to-day life.

The teacher can ask the students to find methods to separate the following:

- Sugar from sand
- Salt from chalk powder
- Oil from water
- Iron powder from sand
- Alcohol from water

While discussing these, the teacher can explain that certain unique properties of each constituent help us to segregate these substances. It can be difference in size, solubility, density, magnetic properties etc. Similarly, every person has some unique talent which makes him/her stand apart in a group. One should identify his / her potentials and develop those, so that he/she can use it for his/her success. This self-realisation is very important in life.

B. Activities:

B.1. This is a demonstration cum discussion activity. The teacher can keep some objects like pieces of paper, cardboard, eraser, scale, small pebbles etc. on the table. Then ask the students to blow strongly on these items. It can be observed that only pieces of paper which are lighter, will be blown away while all others remain there without moving. The teacher can explain this as the principle of winnowing. While winnowing, the husk of the

grains which are lighter will be carried away while the heavier grains are left at where they are.

The teacher can link a life lesson from this activity. If you want to move forward in life you should keep your life as simple as possible like the lighter paper pieces. Simplicity in life is a virtue that helps you to achieve peace of mind and hence success. You should not make your life heavy, by indulging much in worldly obsessions.

Things needed: pieces of paper, some heavy objects like eraser, small pebbles, scale, cardboard etc.

B.2. This activity is a demonstration of sedimentation process. Take some water in a beaker. Mix some mud in the water. Stir it thoroughly. It can be seen that the solution becomes cloudy. Now allow it to remain on the table without any disturbance. After sometime, it can be observed that the solution becomes clear and the mud settles down.

This experiment can be related to mental stability and peace. If we stay away from situations that agitate our mind and allow it to stay calm, we can achieve inner peace, just like the transformation of muddy water to clear water. This in turn increases the power of our mind, which is very important for our overall health.

Things needed: Glass beaker with water, mud and a stirrer

B.3. This activity is a story narration activity which helps the students to understand the daily application of separation techniques.

It became almost dusky when my father returned from market. He had bought pulses, fruits and vegetables for our daily needs. He sat on a chair and was relaxing. My mother went into the kitchen and made tea for him. She strained the tea leaves and threw it into the dust bin. My granny sat on the floor and started taking the things out of the basket. She asked us to separate oranges from apples which were together. She then took out the rice and started picking the stones from it.

My mother took some daal and soaked it in water. The impurities in it started floating on top of the water which she slowly decanted out. My sister took some curd and started churning it to remove butter.

The next day my father took me to a nearby place where salt is made from sea water. Common salt is obtained from sea-water by the process of evaporation. Sea water is trapped in large, shallow pools and allowed to stand there. The sun's heat evaporates the water slowly and common salt is left behind. This impure common salt obtained has impurities and is hence purified to obtain pure common salt by recrystallization.

While narrating the story the teacher can ask children to note down the separation techniques used in the story and write a short note on them.

In this context the teacher can explain the importance of integrity in life. The hand picking of oranges from apples was possible because each of them preserved its integrity and did not lose their uniqueness and was always different from the other. We should also try to keep our integrity intact no matter in whichever company we are, and uphold our values and beliefs. This activity also helps to improve the listening and comprehension skills of students.

V. Assignments

C.1. Home Assignment.

Students can be asked to visit a near by drinking water purification unit and prepare a write up on the different techniques used to convert dirty water into pure drinking water. If not possible they can be asked to study the water purifier at home and find out what all methods are used to purify water.

Some facts can be pointed out to students. In early days we never used water purifiers since the water we used to get from rivers and wells were pure. But today we have polluted the environment so much that we have to use different separation methods to purify and obtain drinking water. The teacher can urge children not to encourage activities that will pollute our environment, which is so essential for the sustainability of this planet.

Resources

References:

- NCERT Class VI Science Textbook.
- Picture courtesy: <https://www.atmo.arizona.edu>

Topic	Values / Life skills integrated & imbibed	Activities
Changes Around Us	<p>Core Values considered : Adaptability, Positivity, Hope</p> <p>Other Sub-Values: Will power and Determination.</p> <p>Life skills: Concentration and listening skills.</p>	<p>The teacher introduces the chapter with a discussion on the different changes we see everyday and how we can differentiate between physical and chemical changes.</p> <p>Act. 1. A story-based activity to improve listening skills and concentration.</p> <p>Act. 2. This is a team game that helps children to recognize various types of changes.</p> <p>Home assignment is an essay writing that teaches the students adaptability</p>

Materials / Resources needed

Description (of the points of discussion)

This chapter teaches about the different types of changes like physical and chemical changes. The points discussed are:

- 1) Changes are inevitable and one has to adapt to the changes in life and go ahead with hope and determination.
- 2) How to classify changes into physical and chemical, reversible and irreversible, permanent and temporary
- 3) In a chemical change a new substance is formed.
- 4) Changes have to occur and one has to adapt to the changes and should be positive and hopeful in case of undesirable changes.

Unit 6**Changes Around Us
Adaptability, Positivity, Hope****I. Introduction**

Changes are inevitable. It always happens around the world all the time. This chapter teaches about the different types of changes like physical and chemical changes. Some changes are temporary while some others are permanent.

The teacher in the process of teaching the different types of changes can also touch upon the changes that happen to human relationships and how we can avoid conflicts. Sometimes these may be temporary whereas sometimes the impact may be permanent. Some changes can be reversed while some others may be irreversible.

The core values focused upon are Adaptability, Positivity, Hope and sub values like Will power and Determination.

II. Learning Objectives / Outcomes

Through this unit, the students will achieve the following grade appropriate academic and value-based goals. They will able to:

- Classify changes into physical and chemical, reversible and irreversible, permanent and temporary.
- Realise that the change of states are temporary physical changes.
- Understand that in a chemical change a new substance is formed.
- Know that changes have to occur and one has to adapt to the changes. One should be positive and hopeful in case of undesirable changes.

III. Process & Action Plan

A good teacher is a good listener who dedicates time and has patience to listen to his/ her students. He/ She will be a problem solver and can make students feel that there is some one for you in this world to whom you can open up your mind.

The values and life skills integration within this unit may follow the following process and action plan, as depicted in the flow chart below:

A. Introduce the context activity:

Discussion. Refer A



B. Carry out the varied activities in class (given below) in the sequence specified.



1. A story-based activity to improve listening skills and concentration.
Refer B.1.

2. This is a team game that helps children to recognize various types of changes.
Refer B.2.



C. Aid generalization of the concepts learnt, through assignments (given below).



1.This is a home assignment that teaches the students adaptability. Refer.C.1.

While it would be ideal to expose the students to all the activities as given, and the discussion that would ensue, you may choose as per your convenience and availability of time, the activities that would be relevant to the content being taught and/or suited to the cognitive and emotional maturity of the students.

This topic incorporates the **core approach** - Knowing, Understanding, Valuing and Acting which are the values embedded in the chapter.

The **core values** being considered are *Adaptability, Positivity, Hope and sub values like Willpower and Determination.*

The unit also provides the scope to develop the following life skills in the students like *concentration and listening skills.*

IV. Activities & Related Discussion

A. The teacher can introduce the chapter with a discussion on the different changes we see everyday and how we can differentiate between physical and chemical changes. He/she can ask the students to give examples of some useful changes and some undesired changes. The teacher can then explain to them that changes are inevitable and one has to adapt to such changes in life; and go ahead with hope and determination.

B1. Activities:

B.1. This is a story-based activity. The following story can be narrated to children. They should be asked to identify and list all the physical and chemical changes given in the story. The teacher can check whether they have identified all the ones and accordingly grade their performance.

Raju and Priya wanted to give surprise to their mother by throwing a birthday party for her. They baked a cake using flour and eggs. They boiled eggs, cut the vegetables for salad and sliced an apple. They kept some water in the fridge to make ice. They made some sugar solution. They also made some tea.

They then burned a candle, burned crackers and filled balloons with air. They also bought a present for their mother. Priya tore off the paper cover and threw it away. Her mother was very happy seeing the present.

The teacher can elaborate the story if she wishes to include more changes in the story. Please note that he/she should narrate the story only once. While she narrates the story, the children can note down the changes and decide what kind of change it is. This activity will help to improve the listening skills and concentration of the students. The teacher can then discuss the answer and grade the children accordingly.

B.2. This is an activity that can be done in the classroom. The teacher can divide the class into two teams. Each team has to name a material and the other team has to discuss and

come up with a physical and a chemical change of that object. This can be repeated alternately, each team giving the task to the other. For e.g. One team says object is paper. The other team has to give one chemical change and one physical change associated with paper, like burning of paper as chemical change and folding of paper as physical change. Some examples of other objects that can be asked are water, apple, alcohol, wax, twigs, sugar.

This activity helps them to get to explore many changes associated with different objects. The teacher can decide whether the answers given are correct or not.

V. Assignments

C.1. Home Assignment:

The students can be asked to write an essay on the changes that occurred around them in their house, in their school and on their way to school. It can be a new shop which is opened or a tree-fall. Children can be made to understand that many of the changes that happen are not in our control. So even if a particular change upsets them, they have to move ahead with positivity. They can always hope that this change is only temporary and have to patiently wait, with will power and determination for the situation to change in their favour.

Resources

References:

- NCERT Class VI Science Textbook.

Topic	Values / Life skills integrated & imbibed	Activities
Getting to Know Plants	<p>Core Values considered : Gratitude, Selflessness, Adaptability, Inter-dependence</p> <p>Other Sub-Values: Compassion, Kindness, Humility and Love for nature.</p> <p>Life skills: Listening skills, observation skills, and comprehension skills.</p>	<p>The teacher can introduce the chapter with a discussion on how plants supply us with food.</p> <p>Act.1. Journal making activity.</p> <p>Act.2. An autobiography narration cum discussion activity</p> <p>Act.3. Fulfilled blindfold drawing activity.</p> <p>Home Assignment: Plant growing activity.</p>

Materials / Resources needed

Act.1. A journal

Act.3. Chalk,

Home Assignment: A money plant and vase.

Description (of the points of discussion)

Plants are the silent entities that makes life possible on earth. They give oxygen and food, the most essential components that supports life on earth. This chapter elaborates on the following:

- 1) Classify plants into herbs, shrubs and trees based on their characteristics.
- 2) Identify the different parts of a plant and their functions
- 3) How plants silently supply oxygen and food to all other living beings and also shade and shelter to many organisms which displays their humility.
- 4) Appreciate the contribution of plants and feel grateful to them for their compassion and kindness.
- 5) how the plants adapt themselves to adverse conditions and learn from them.

Unit 7

Getting to Know Plants **Gratitude, Selflessness, Adaptability, Inter-dependence**

I. Introduction

‘A man does not plant a tree for himself. He does it for posterity’

-Alexander Smith

Plants are the silent entities that makes life possible on earth. They give oxygen and food, the most essential components that supports life. This chapter elaborates on how plants can be classified into trees, shrubs and herbs. It also familiarizes students to different parts of plants like stem, root, leaves, flowers and fruits and also about their functions.

While teaching about the contribution of plants to other living beings, the teacher can urge students to be grateful to plants for their selfless service. The students can also be enlightened with the fact that we are all interdependent for our existence on this earth.

The core values focused upon are *Gratitude, Selflessness, Adaptability, Interdependence and sub values like Compassion, Kindness, Humility and Love for nature.*

II. Learning Objectives / Outcomes

Through this unit, the students will achieve the following grade appropriate academic and value-based goals. They will able to:

- Classify plants into herbs, shrubs and trees based on their characteristics.
- Identify the different parts of a plant and their functions.
- Know the different types of roots and venation in plants.
- Comprehend how plants silently supply oxygen and food to all other living beings and also shade and shelter to many organisms which can be correlated with humility.
- Appreciate the contribution of plants and feel grateful to them which can be connected with compassion and kindness.
- Realise and learn how plants adapt themselves to adverse conditions.

III. Process & Action Plan

A teacher should be flexible in his / her approach. If he /she finds that his / her methodology is not working, he/ she should be ready to change it and explore new ways of teaching. The teacher should use her innovative skills to make the students comprehend the lesson.

The values and life skills integration within this unit may follow the following process and action plan, as depicted in the flow chart below:

A. Introduce the context activity:

Discussion. Refer A



B. Carry out the varied activities in class (given below) in the sequence specified.



1. A journal preparation activity to enhance observation skills and also to develop love for nature in the students. Refer B.1.

2. An autobiography-based activity to improve listening skills and comprehension skills. Refer B.2.

3. This is a fun drawing game that helps children to know about the various part of the plants. Refer B.3.



C. Aid generalization of the concepts learnt, through assignments (given below).



1. This is a home assignment that makes students realise the importance of adaptability. Refer.C.1.

While it would be ideal to expose the students to all the activities as given, and the discussion that would ensue, you may choose as per your convenience and availability of time, the activities that would be relevant to the content being taught and/or suited to the cognitive and emotional maturity of the students.

This topic incorporates the core approach – Knowing, Understanding, Valuing and Acting-the values embedded in the topic.

The core values being considered are Gratitude, Selflessness, Adaptability, Interdependence and sub values like Compassion, Kindness, Humility and Love for nature.

The unit also provides scope to develop life skills in students like listening skills, observation skills, and comprehension skills.

IV. Activities & Related Discussion

A. The teacher can introduce the chapter with a discussion on how plants supply us with food. He / She can elaborate on photosynthesis and why plants are considered to be the only producers. Students can be asked to list the parts of plants which mothers use to prepare food. This will help children to understand how much we are dependent on plants and they will feel grateful to plants.

B. Activities:

B.1. This is a journal making activity. Students can collect the details of five plants growing in the vicinity of their house. They have to classify them into trees, herbs and shrubs. They also have to record the changes happening to these plants for a period of one month. The following details can also be included in the journal.

- Which category the plant belongs to? Trees/ Herbs/Shrubs
- Does it have flowers? If yes, what colour.
- What kind of venation it is having? Parallel/Reticulate
- Is its stem hard or soft?
- Is it a climber or a creeper?
- Does it bear fruits? If so, is it edible?

Students can take the help of parents in this journal preparation. This activity helps to develop a bond between children and plants and will help to develop love for nature as well as enhance their observation skills.

B.2. This is an autobiography cum discussion activity. The teacher can narrate the autobiography of a banyan tree which is given below.

I am an old Banyan tree and I am writing my autobiography. I was born on 26th January, 1814. I have a faint recollection of my infancy. First a tree cannot be sure of anything about its birth. It is said that a certain bird while eating a bunch of banyan cones dropped some seeds on the ground where I stand now. I was born of one of those seeds. I remained cold and low throughout winter and one fine morning, in spring, I opened my eyes and smiled upon the sun. Gradually, I grew into a young plant to sustain life upon earth in a full-fledged manner, contributing whatever I can for the society and the environment.

I have gathered varied experience in my long life. On a fine summer day, I felt a little puzzled when I saw myself being worshipped by some village women; but I do not know what holiness they found in me. I am now a stout and strong Banyan tree deeply rooted to the ground.

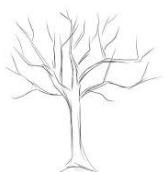
Several generations of men of this place and its adjoining areas have come in direct contact with me. I have seen them come and go, but I am still living. Generations of monkeys, countless generations of birds have lived upon my branches. People, birds and other animals are still with me, fairs and melas are still held and I may have another hundred years' life unless I am struck by a deadly thunder or uprooted by a violent storm or cut by man. But in any case, I wish to die with mental satisfaction that during my long tenure of life my enemies were directed towards rightful actions and duties worth living. Source: www.brainly.com

The teacher can start the discussion asking the following questions.

- Why did the banyan tree feel satisfied?
- What do you think about the lifespan of a banyan tree?
- How did the banyan tree help birds and animals around him?
- Why should we all be grateful to the banyan tree?

This activity throws light upon the fact that trees not only give us food and oxygen but also shade and shelter. They do a selfless service to all living beings, with humility. This will make children feel grateful to trees and will also make them aware of the interdependence of plants and animals. This activity also improves the listening skills and comprehension skills.

B.3. This is a fulfilled blindfold drawing activity. The teacher can draw a picture, like the one shown below, on the board.



Students can be divided into four teams. namely root, leaf, flower and fruit. The teacher can blindfold a member from each group and ask him/ her to mark the part given to the team, on the board in the correct location. For e.g. The leaf team can try to draw a leaf on the correct position on the sketch of the tree. The team also shall write down the function of that part on the board. The team that draws the part in the correct position will be the winner.

This activity will help children to comprehend the various parts of a plant and also their functions. This also tells them that each part has an important role and all the parts have to work in coordination for the survival of the plant.

Picture courtesy: www.pinterest.com

V. Assignments

C.1. Home Assignment:

The teacher can ask students to grow a money plant in a vase. The student can then keep the vase at a location, where the sunlight comes from a far window on the side.



After some days it can be observed that the plant grows towards the window to get the sunlight for its survival. The teacher can explain to children that this money plant teaches the importance of adaptability for survival. In life we may have to face many changes and challenges. One should be flexible and adapt to any adverse situation in life in order to achieve success.

Picture courtesy: www.thoughtco.com

Resources

References:

- NCERT Class VI Science Textbook.
- Autobiography courtesy: www.brainly.com
- Picture courtesy: www.pinterest.com , www.thoughtco.com

Topic	Values / Life skills integrated & imbibed	Activities
Body Movements	<p>Core Values considered : Compassion, Respect, Harmony</p> <p>Other Sub-Values: Sensitivity.</p> <p>Life skills: Judgement skills</p>	<p>Introduction: Discussion on various types of movements.</p> <p>Act.1.A mimicking activity-helps the students to identify the various types of movements and know more about the muscle bone coordination. In life also, we require harmony and understanding among people to work as a team and get things done</p> <p>Act.2.yoga demo-To realise the need for yoga or exercise in our daily routine.</p> <p>Act.3. A video demo that conveys the challenges faced by differently abled people, especially whose movement is restricted.</p> <p>Home Assignment:</p> <p>This is a picture puzzle activity This activity enhances the judgement skills of the students and tests their knowledge.</p>

Materials / Resources needed

Act.3+F22

Description (of the points of discussion)

This chapter is meant to give an overview of our skeletal system and also the various joints and the type of motion it helps. The following are the important topics discussed.

- 1) How movements are possible and the structure of our skeletal system.
- 2) Identify the movements permitted by different types of joints and also the various important bones in our body
- 3) How different animals like fish, birds, snakes, insects, snails and earthworms move.
- 4) How to keep our bones and muscles healthy? By doing exercise or yoga.
- 5) Give respect to people who are differently abled and to be compassionate and kind to them and help them to lead a normal life in this challenging world with self esteem.

Unit 8**Body Movements
Compassion, Respect, Harmony****I. Introduction**

Our body is capable of making various kinds of movements. We move from one place to another or move our body parts in different ways. These movements are facilitated by the coordinated activities of our muscles, bones and joints. Plants also can move their body parts though they are not capable of moving from one place to another.

This chapter is meant to give an overview of our skeletal system and various joints along with the type of motion they facilitate. This unit also touches upon the different types of movements exhibited by plants and animals. While explaining this chapter, the teacher can also elaborate upon the importance of exercise and yoga in our daily life and also about those people who may not be able to move some parts of their body. This will inculcate feelings of compassion and respect for such differently abled people and will make children aware of the challenges faced by such people on a daily basis.

The core values focused upon are Compassion, Respect, Harmony and sub values like Sensitivity.

II. Learning Objectives / Outcomes

Through this unit, the students will achieve the following grade appropriate academic and value-based goals. They will be able to:

- Realise how movements are possible and know about the structure of our skeletal system.
- Identify the movements permitted by different types of joints and also the various important bones in our body.
- Know how different animals like fish, birds, snakes, insects, snails and earthworms move.
- Learn how to keep our bones and muscles healthy, by doing exercise or yoga.
- Give respect to people who are differently abled and to be compassionate and kind to them and help them to lead a normal life with self esteem in this challenging world.

III. Process & Action Plan

Teaching is a gift that seems to come quite naturally, but if one can do a little bit of hardwork with dedication, one can become a good teacher. Teachers can also do a self-analysis from time to time, which will help them to improve and evolve.

The values and life skills integration within this unit may follow the following process and action plan, as depicted in the flow chart below:

A. Introduce the context activity:

Discussion. Refer A



B. Carry out the varied activities in class (given below) in the sequence specified.



1. A mimicking activity that will help students to understand various types of movements in animals.
Refer B.1.

2. A yoga demo which will help children to recognize the importance of exercise in daily life.
Refer B.2.

3. A video demo that will throw light upon the problems faced by differently abled people .
Refer B.3.



C. Aid generalization of the concepts learnt, through assignments (given below).



1.This is picture puzzle assignment which helps children to visualize the human skeletal system. Refer.C.1.

While it would be ideal to expose the students to all the activities as given, and the discussion that would ensue, you may choose as per your convenience and availability of time, the activities that would be relevant to the content being taught and/or suited to the cognitive and emotional maturity of the students.

This topic incorporates the **core approach** - Knowing, Understanding, Valuing and Acting the values embedded in the topic.

The **core values** being considered are *Compassion, Respect, Harmony and sub values like Sensitivity*.

The unit also provides the scope to develop the like *judgement skills* of the students.

IV. Activities & Related Discussion

A. The teacher can start a discussion on the various types of movements you can make with the different parts of your body. He / She can ask students to demonstrate such movements. The following questions can be asked to students during the course of discussion.

- Is it possible to sit for one minute without any movements?
- Do plants move? If yes, give an example.
- Do you exercise or practice yoga daily? Is it important?

After this discussion students will understand the importance of doing exercise or yoga for the overall health of their body.

B. Activities:

B.1. This is a mimicking activity. The teacher can ask students to mimic the movement of any animal and ask others to guess the name of the animal. This will be an interesting activity which will help students to identify the different types of movements exhibited by different animals. If they wish they can also mimic the way human beings move, during the different stages of their life., like a child's crawl, then the toddle of a toddler and the fragile walk of an aged person.

This mimicking activity helps students to identify the various types of movements and know more about the muscle-bone coordination. They will realise that for movements to happen, harmony and coordination is needed between different organ systems in the body such as the nervous system, muscular system, skeletal system etc. Likewise, in life also, we require harmony and understanding among people to work as a team to accomplish targets.

B.2. This is a yoga demo. The teacher can take the help of a yoga or physical education instructor to demonstrate the various yoga poses and explain to them the need for yoga or

exercise in our daily routine to keep our body fit.



Children can be made aware that a healthy mind resides in a healthy body and yoga helps one to be mentally and physically strong. Other physical benefits of yoga include:

- increased flexibility
- increased muscle strength and tone
- improved respiration, energy and vitality
- maintaining a balanced metabolism
- improved athletic performance.

The teacher can elaborate that our body is like a machine which requires regular maintenance, especially joints which play an important role in facilitating our movement. Just like a machine requires greasing and oiling our bones require nutrition and exercise. If we do not take care, then it can lead to movement restrictions and adverse conditions like spondylitis, arthritis, osteoporosis etc.

B.3. This is a video demo that conveys the challenges faced by differently abled people, especially whose movements are restricted.

<https://www.youtube.com/watch?v=KAOKOezFhKo>

This video will be an eye opener to children, which will encourage them to feel compassionate, give due respect to differently abled people and to treat them as equals. This will help them to develop in life as sensitive individuals. The teacher can convey to them that those who have problems in movement can also lead a normal life, if we help them out. For that we need to ensure there are arrangements in public places, malls, work places, washrooms etc. which are wheel-chair friendly.

V. Assignments

C.1. Home Assignment:

This is a picture puzzle activity. The teacher can take a print of the given picture and give copies to children. They can cut the bones from the paper and stick them correctly on to a cardboard to make the full skeleton. This activity enhances the judgement skills of the students and tests their knowledge.



Resources

References:

- NCERT Class VI Science Textbook.
- Picture courtesy: <https://www.123rf.com>
- Puzzle picture courtesy: www.pinterest.com

Living Organisms-Characteristics and Habitats

Topic	Values / Life skills integrated & imbibed	Activities
Living Organisms-Characteristics and Habitats	<p>Core Values considered: Adaptability, Positivity, Hope</p> <p>Other Sub-Values: Determination and Hope.</p> <p>Life skills: Concentration and listening skills.</p>	<p>The teacher introduces the chapter with a discussion on the various type of plants and animals found in that area.</p> <p>Act.1. A survival game to understand habitats and adaptations in detail.</p> <p>Act.2. Interesting game like the name, place, thing animal game. It will improve the knowledge and concentration.</p> <p>Home Assignment: Map of India marking activity</p>

Materials / Resources needed

Act.1.Things needed: 2 bowls. Placards and paper chits with names of animals and adaptations.

Home Assignment: Things Needed: A Map of India and some pictures.,glue,colour pens.

Description (of the points of discussion)

This chapter introduces children to various habitats of plants and animals and how they are able to adapt themselves to their surroundings. The important topics discussed are:

- 1) the meaning of habitat and how plants and animals share the same habitat.
- 2) the different types of habitats and know how the plants and animals are able to adapt to their environment.
- 3) what are biotic and abiotic components and how abiotic components are helping in the survival of plants and animals in a particular habitat.
- 4) Many things are common among living things.
- 5) Appreciate the spirit of survival and realise the importance of adaptability for survival.
- 6) Positivity and hope can help one survive even in adverse conditions.

Unit 09**Living Organisms-Characteristics and Habitats****Adaptability, Love for the country, Positivity****I. Introduction**

There is no place on earth devoid of life. Life survives deep in the oceans to top of the mountain peaks. Animals and Plants adapt to the environment they live. This adaptation which is a part of evolution, helps them to survive in extreme conditions on different parts of earth.

This chapter introduces children to various habitats of plants and animals and how they are able to adapt themselves to their surroundings. The variety in flora and fauna can also be attributed to the abiotic factors that help them to survive in that place. This chapter teaches children the importance of adaptability to surrounding environment for survival. This chapter also highlights that one should be having a positive attitude and hope to reach one's goal, even when facing adverse situations.

The core values focused upon are Adaptability, Love for the country, Positivity and sub values like Determination and Hope.

II. Learning Objectives / Outcomes

Through this unit, the students will achieve the following grade appropriate academic and value-based goals. They will be able to:

- Comprehend the meaning of habitat and how plants and animals share the same habitat.
- Identify the different types of habitats and know how plants and animals are able to adapt to their environment.
- Understand what are biotic and abiotic components and how abiotic components are helping in the survival of plants and animals in a particular habitat.
- Recognise what all things are common among living things.
- Appreciate the spirit of survival and realise the importance of adaptability for survival.
- Realise that positivity and hope can help one survive in adverse conditions.

III. Process & Action Plan

A teacher should aim at not only enhancing the academic knowledge of the students but also should help the students to improve their various life skills like communication skill, concentration, listening and comprehending skill, observation skill etc. The teacher can come up with innovative ideas to engage students in various activities that help them to improve upon the above-mentioned skills.

The values and life skills integration within this unit may follow the following process and action plan, as depicted in the flow chart below:

A. Introduce the context activity:
Discussion. Refer A



B. Carry out the varied activities in class (given below) in the sequence specified.



1. A survival game which teaches adaptation and determination. Refer B.1.

2. This is a game that helps to improve knowledge and concentration of children Refer B.2.



C. Aid generalization of the concepts learnt, through assignments (given below).



1.This is a home assignment that helps students realise the greatness of our nation. Refer.C.1.

While it would be ideal to expose the students to all the activities as given, and the discussion that would ensue, you may choose as per your convenience and availability of time, the activities that would be relevant to the content being taught and/or suited to the cognitive and emotional maturity of the students.

This topic incorporates the **core approach** - Knowing, Understanding, Valuing and Acting the values embedded in the topic.

The **core values** being considered are *Adaptability, Love for the country, Positivity and sub values like Determination and Hope.*

The unit also provides the scope to develop the following life skills in the students like *concentration and listening skills.*

IV. Activities & Related Discussion

A. The teacher can introduce the chapter with a discussion on the various types of plants and animals found in that area. The teacher can explain what are meant by the terms habitat and adaptation. Children should be able to comprehend the various habitats on earth and the types of adaptations required for survival in those places. The teacher can also show pictures of animals living in different habitats and their adaptations that help them to survive.

B. Activities:

B.1. This is a survival game which can be played in the classroom. There will be two bowls that are kept on two different tables. The first bowl will have paper chits with names of different animals belonging to different habitats and the second one will have different adaptations written on pieces of paper. Four or five students can be made to stand at one corner of the classroom with placards having names of different habitats like Ocean, Antarctica, Grasslands, Desert, Snow mountains, River etc. The student who is playing the game should pick one chit from the first bowl and decide towards which habitat he/she has to go. Then he / she has to go on picking pieces of paper from second bowl until he / she gets three adaptations that will help him / her to survive in the chosen habitat. For e.g. if the student picks fish from the first bowl, he/ she has to choose ocean or river as the habitat. Then he / she has to pick three paper pieces in which adaptations like stream lined body, gills to breathe, body covered with slimy scales etc. are written. After picking the appropriate chits, student will have to run towards the respective habitat. If he/she succeeds to do this in 30 seconds he / she is a winner.

This game will help students to understand habitats and adaptations in detail. Also, it will teach them about how one should adapt for their own survival and should never lose hope and positivity.

Things needed: 2 bowls. Placards and paper chits with names of animals and adaptations.

B.2. This is another interesting game like the name-place-thing-animal game which children usually play. The class can be divided into 4 teams. The game goes like this.

- The first team will say an animal or plant name.
- The next team will give the type of its habitat.
- The third team in the sequence can give the name of an adaptation of that animal.
- The fourth team can give the name of a place that animal survives.
- Then the game can go on with the second team guessing the animal or plant.

This game will make the learning of habitats real fun. At the same time it will improve the knowledge and concentration of students.

V. Assignments

C.1. Home Assignment:

The students can be asked to prepare a map of India with different states clearly demarcated. They should paste the picture of animals and plants belonging to different habitats in the appropriate places in the maps. They can then submit it to the teacher for a review.

This will make students realise the vast diversity in the flora and fauna of our country and fill their minds with love for their country.

Resources

References:

- NCERT Class VI Science Textbook.

Motion and Measurements of Distances

Topic	Values / Life skills integrated & imbibed	Activities
Motion and Measurements of Distances	<p>Core Values considered : Trust, Discipline, Consistency, Hope ..</p> <p>Other Sub-Values: Accuracy , Determination and Hard work.</p> <p>Life skills: Decision making skills.</p>	<p>Introduction-Story narration and Discussion -Helps the children to appreciate the importance of a standard unit of measurement</p> <p>Activity 1 -Classroom activity involving students which help them to experience the importance of standard measuring devices.</p> <p>Activity 2- Group activity highlighting why discipline, determination and focus are important for success.</p> <p>Activity 3 -Demonstration and discussion on how simple pendulum inspires you to be hopeful in life.</p> <p>Class Assignment - Path finding Game- which enhances decision making skills of the students and emphasises the importance of hard work.</p>

Materials / Resources needed

Act, 1-.A classroom with some objects like table, chair, measuring scale

Act. 4-.simple pendul + F5um

Act .5-Picture which the teacher can take a print or can make on her own.

Description (of the points of discussion)

This chapter deals with the concept of motion of objects and measurement of distances. This unit explains the significance of standard units of measurements. The points of discussion are as follows:

- 1) How, long distances has become insignificant, after the invention of wheel.
- 2) Why you should rely only on trusted measuring units and devices and how the values of trust, accuracy and consistency are important in our life.
- 3) How to measure the length of a straight line and a curved path.
- 4) Different types of motion and their characteristics.
- 5) How periodic motion of a simple pendulum can teach us to be hopeful in life even if you have to face challenges.
- 6) The pathfinder game activity helps children to weigh the pros and cons of the different options available and make an apt judgement on the selection of the path. This hones the decision making skills of the students which may be very helpful in their future endeavours. It also highlights the importance of hard work to be successful in life.

Unit 10**Motion and Measurements of Distances****Trust, Discipline, Consistency and Hope****I. Introduction**

“One measurement is worth thousand expert opinions.”

- Admiral Grace Murray Hopper

The quote above is quite true in modern physics. Physics is a subject of accuracy and consistency. This chapter deals with the concept of motion of objects and measurement of distances. It helps children to comprehend the various means of transportation and the importance of invention of wheel in human evolution. It also explains to students the importance of a standard unit for measurement and how length can be measured accurately.

While teaching the scientific aspects of measurement, the teacher can introduce the importance of values like trust, accuracy and consistency, by explaining the concept of measurement and why a standard unit of measurement is needed. This chapter also introduces children to various types of motion which can be associated with the virtue of discipline and hope.

The values which the teacher can introduce in this chapter are trust, discipline, consistency, hope and sub values like accuracy, determination and hard work.

II. Learning Objectives / Outcomes

Through this chapter, the students will achieve the following grade appropriate academic and value-based goals.

- 1) Appreciate the importance of the invention of wheel.
- 2) Comprehend the various modes of transportation available.
- 3) Explain why standard units of measurements are needed.
- 4) Take proper measurement of length without any error.
- 5) Identify different types of motion and their characteristics.
- 6) Realise the importance of consistency through the concept of standard units of measurement.

- 7) Appreciate trust as an important virtue in life.
- 8) Explain why discipline is important in achieving our life goals.
- 9) Realise that life comes with ups and downs, like the periodic motion and one should never lose hope in life.

III. Process & Action Plan

“Tell me I forget, teach me and I may remember, involve me and I learn.”

- Benjamin Franklin

Irrespective of the subject being taught, teachers can encourage their students to see every academic topic from different angles. The perspective of students can be directed into different directions if the teacher is able to guide them. This chapter, when viewed from the value point of view, can inculcate moral values like trust, discipline, consistency and hope in the students.

Values and life skills integration within this unit may follow the following process and action plan, as depicted in the flow chart below:

A. Introduce the context activity:
Story Narration. Refer A



B. Carry out the varied activities in class (given below) in the sequence specified.



1.This activity demonstrates two important values to students - trust and consistency.
Refer B.1.

2. This activity based on types of motion can highlight the importance of discipline in life to achieve one's goals.
Refer B.2.

3. This activity emphasizes the acceptance of the fact that life comes with good and bad times and instills hope in the mind of students.
Refer B.3.



C. Aid generalization of the concepts learnt, through assignments (given below).



1.This assignment helps to enhance decision making skills of the students based on distances and difficulty levels.
Refer C.1.

While it would be ideal to expose the students to all the activities as given, and the discussion that would ensue, you may choose as per your convenience and available time, the activities that would be relevant to the content being taught and/or suited to the cognitive and emotional maturity of the students.

This topic incorporates the **core approach** - Knowing, Understanding, Valuing and Acting the values embedded in the topic.

The **core values** being considered are *trust, discipline, consistency, hope and sub values like accuracy, determination and hard work.*

The unit also provides scope to enhance the decision-making skills of the students based on pros and cons of the options available.

IV. Activities & Related Discussion

A.1. Story narration:

The teacher can start with an interesting story from Indian mythology to highlight the importance of a trusted and standard measurement tool. This is the story of a wise and fair king named Mahabali, who was very much loved and respected by all the people in his kingdom. But his popularity made him arrogant and proud. So Lord Vishnu decided to put an end to his arrogance.

Disguised as a dwarf Vamana, he came to the king's palace asking for alms. Mahabali, being famous for his generosity and kindness asked Vamana what he wanted from him. Lord Vishnu said he was a poor person and wanted only a piece of land. The generous King said that he could have as much land as he wanted. But Vamana asked only for as much land as could be covered by three steps of his foot. The King was surprised at the request. Vamana's feet appeared very small and 3 steps of land was too insignificant as a charity. The king immediately agreed. Suddenly the lord started growing in size; he grew so huge that with one step he covered the whole earth, with the second step he covered the whole sky. He was not having a place to keep his third step. The proud Mahabali realised his folly, but was not going to give up. He knelt down and asked Vamana to place the third step on his head.

The moral of this story is that one should not judge anything just by seeing or based on false perceptions. One should make a judgement based only on a standard and trusted source of information. Trust and consistency are two important virtues in life that one should earn from others.

B. Activities:

B.1. The teacher can ask students to measure the length of the desk with their handspan. Then he/she can explain why there is a difference in their measurements. Then he/she can ask the students to use a scale to measure the same. When the students come up with

same measurements, he/she can highlight the importance of a standard measurement. This activity can demonstrate to students about the importance of consistency and trust. It can be explained that in life one should not take decisions based on the opinions of unreliable sources which may be biased or inconsistent. Whereas one should rely on a trustworthy and reliable source which is consistent just like the standard measuring scale used. The importance of accuracy can also be explained here.

Things needed: A bench or desk and a standard measuring scale.

B.2. This activity is based on the different types of motion which can help the teacher to demonstrate the value of discipline in our life. The teacher can ask the students to walk in a straight line (which can be drawn on the floor with a chalk) towards a particular object like a desk or a door which can be compared to the rectilinear motion. Ask every student to blindly follow his predecessor. Then the teacher can direct the leading student in the queue to divert from the straight line sideways. Since everyone follows the person ahead of him the whole set of students will drift away from the straight line and will not be able to reach the destination.

The teacher can then ask the students to form a circle and start moving in a circle maintaining equal distance from a centre point demonstrating circulatory motion. In between the teacher can interrupt and ask everyone to move away from the centre which will distort the circle formed. These demonstrations help the children to understand the importance of discipline in life. It can be explained to them that in life if one has to reach his/her goal then he/she should be focused and disciplined. He/she should not be distracted like the person who deviated from the straight line which led to all of them not reaching the destination. When the students did not keep equal distance from the centre, the circle got distorted. Determination to reach the goal is another virtue which can be highlighted in this context.

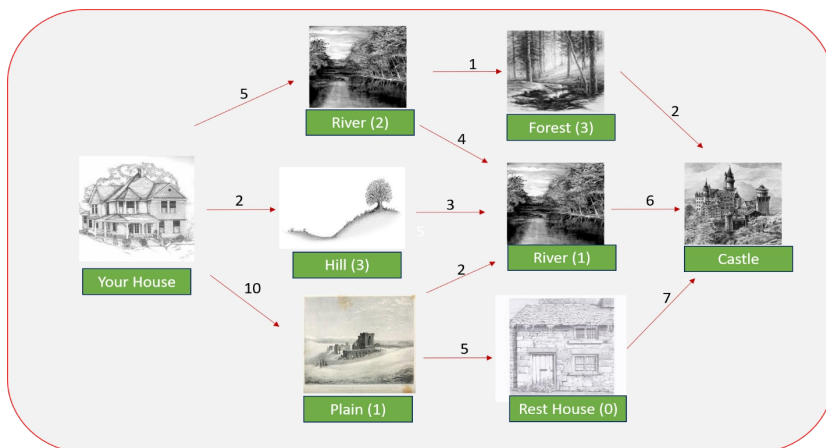
Things needed: A chalk to draw a line and to mark the centre of a circle.

B.3. The teacher can make students write about three good and three bad moments in their life. The teacher can then demonstrate the motion of a simple pendulum and can explain that good times and bad times are like a pendulum which will repeat its to and fro motion. Like day and night, for every bad moment there will be a good moment in store for all of us. The children should be advised not to lose hope in life and should work hard to achieve what they want just like a pendulum that continues to rise up from its lowest position every time it goes down.

Things needed: A pen and a paper, a pendulum.

V. Assignments

C.1. The teacher can give a path finding game as given below and ask each student to write about which path they will choose to reach their destination and why. This exercise helps them to analyse a given situation and take wise decisions to reach their goal faster. They will learn how to choose between different options available and will also realise that sometimes the path might be short, but they may have to do hard work.



Children may find the shortest and easiest path from the house to the castle. The difficulty levels are different for each obstacle, and are given in brackets as 0,1,2,3 etc. The path lengths are also given in the figure. You have to sum up the distances and also sum up the difficulty levels to obtain the appropriate path. It can be noted that shortest path may have more difficulty. However, those who are willing to work hard can reach the goal faster. The teacher has all the freedom to choose any other picture of her choice or make necessary changes in the given task.

Resources

References:

- NCERT Class VI Science Textbook
- Individual thumb pictures courtesy- <https://www.pinterest.com>

Topic	Values / Life skills integrated & imbibed	Activities
Light, Shadows and Reflection	<p>Core Values considered : Self Awareness, Co-existence and Honesty</p> <p>Other Sub-Values: Positivity and Kindness.</p> <p>Life skills: Self improvement and Goal setting</p>	<ol style="list-style-type: none"> 1) Activity 1 is based on how light helps to see the objects around you .-Demonstration and discussion 2) The activity 2 can be done outside the class and helps the students to understand the fact that light and darkness co exist -Demonstration and discussion 3) The third activity is about honesty and demonstrates to the children how shadows can deceive you .-A game with student participation and further discussion. 4) The next activity is a story narration which can be further put forward for a classroom discussion. Children can be made to answer some questions related to the story and also narrate some similar incidents in their life -Story Narration and discussion. 5) The home assignment -To be done at home by the student and then can be individually discussed with the teacher.

Materials / Resources needed

A classroom with some objects like table chair, eraser, pen, pencils, pencil box, candles, match boxes, mirror.

Description (of the points of discussion)

In this chapter stories and activities are incorporated in such a manner that children learn how to apply their knowledge about light in realising their inner self ,which may help them to grow up as positive thinkers .The key discussions are:

- 1) Shlokas , that help them to understand how knowledge can be compared to light and how it helps to eradicate darkness from our mind. One should be aware of oneself and our surroundings .The importance of self awareness can be touched upon here.
- 2) The concept of coexistence of darkness and light , which helps students to understand that life is full of ups and downs and one should approach problems with a positive attitude. For every darkness there is a light.
- 3) Highlight the importance of honesty in relationships. An honest friend is like a mirror who points out good and bad qualities in you. He should not be like a shadow, that is not your true manifestation.
- 4) Treat the world like the way you want to be treated. If you are kind to others they will also be kind to you. If you approach anything with positivity the result will also be positive.
- 5) Improve the self esteem and positivity of the children. They should get an inspiration for self improvement and self reflection .Children will be able to develop a positive attitude and will be able to use their full potential in life. The home assignment helps them to set goal for self improvement and encourage them to work towards achieving it.

Unit 11**Light, Shadows and Reflection
Self-awareness, Coexistence and Honesty****I. Introduction**

This chapter is about light which is a form of energy that keeps this world alive. The purpose of this lesson is to make the children understand the importance of light, how shadows are formed and the basic concepts of reflection and mirror images. It also helps them to classify objects into transparent, translucent and opaque.

Light is considered as a symbol of knowledge. This chapter helps students to grasp the co-existence of light and darkness and the phenomena of shadow and reflection. This chapter also highlights the straight-line motion of light which is the basic reason behind the phenomena of shadow and reflection. Children should be encouraged to observe and understand these phenomena and relate it to their daily life.

The core values focused upon are self-awareness, coexistence and honesty along with sub values like positivity and kindness which helps one, to become a good human being.

II. Learning Objectives / Outcomes

Through this unit, the students will achieve the following grade appropriate academic and value based goals.

- 1) Distinguish between luminous, transparent, translucent and opaque objects.
- 2) Understand shadow formation and the changes in shadow size.
- 3) Make a pinhole camera and understand the principle of straight-line motion of light.
- 4) Understand the phenomenon of reflection and its application in mirrors
- 5) Explain how light helps us to see the objects -values related are self-awareness and positivity
- 6) Appreciate the fact of coexistence of darkness and light and develop positivity in life.
- 7) Perceive reflection and mirrors – as related to the virtues of kindness, self-awareness and honesty.

III. Process & Action Plan

“Tell me I forget, teach me and I may remember, Involve me and I learn.”

- Benjamin Franklin

As a teacher one should be a guide to the children. Learning should come from observation and reasoning. While teaching the scientific aspects children should also be guided to understand life values associated with it. Here in this chapter stories and activities are incorporated in such a manner that children learn how to apply their understanding about light in realising their inner self, which may help them to grow up as positive thinkers.

The values and life skills integration within this unit may follow the following process and action plan, as depicted in the flow chart below:

A. Introduce the context activity:
Sloka Reciting and Discussion Refer A.



B. Carry out the varied activities in class (given below) in the sequence specified.



1. This activity demonstrates that light is the knowledge that removes the darkness of ignorance and the importance of self-awareness.
Refer B.1.

2. This activity demonstrates the coexistence of light & darkness & teach children to appreciate both and thus develop a positive attitude.
Refer.B.2.

3 . This activity demonstrates that shadow is not like a true friend and thus highlight the importance of honesty in relationships.
Refer.B.3

4. This is a story based discussion which helps the children to understand the importance of kindness in life.
Refer.B.4.



C. Aid generalization of the concepts learnt, through assignments (given below).



Home Assignment can be given to students for instilling positivity and confidence in them. Refer.C.1.

While it would be ideal to expose the students to all the activities as given, and the discussion that would ensue, you may choose as per your convenience and availability of time, the activities that would be relevant to the content being taught and/or suited to the cognitive and emotional maturity of the students.

This topic incorporates the **core approach** - Knowing, Understanding, Valuing and Acting the values embedded in the topic.

The **core values** being considered are *self-awareness, coexistence and honesty along with sub values like positivity and kindness.*

The unit also provides the scope to develop the following life skills in the students like *self-improvement, as well as goal setting.*

IV. Activities & Related Discussion

A. Explain the meaning of the shloka given below:

‘Asatho maa sadgamaya

Thamaso maa jyothirgamaya

Mrityormaa amritangamaya’

Meaning:

Lead us from unreal to real

Lead us from darkness to the light

Lead us from fear of death

To knowledge of Immortality...

B. Activities:

B. Take the students to a dark room and ask them to identify the objects that are lying on a table there. They may be finding it impossible to identify the objects and their colours. Now light a candle and then ask them to do the exercise again. Now they will be able to identify the objects and their colours. Now you can explain to them about the role of light in our daily life and how it helps us to know about our surroundings. Explain to them why light is compared to knowledge and why self-awareness is important in life.

Things needed: A dark room with a table, a candle, a matchbox, and some things like eraser, pen, book etc which can be kept on the table.

B.2. Take the students to a place where there is ample sunlight, outside the class. Ask them to light a candle in broad sunlight. Also ask whether they felt that the candle is bright

and did lighting the candle made any difference to them. Help them to understand the interdependence or coexistence of darkness and light. In this context the teacher can also explain to the students that for every darkness there is a light. This will help them to appreciate both the brighter and darker side of life and thus inculcate the virtue of positivity in life.

Things needed: A candle, a matchbox.

B.3. Let the teacher take the children to a place where shadows are formed. Each student can be asked to identify his/her classmate from their shadows. This may not be hundred percent correct. Now make ask them to identify their friends with the help of a mirror image. That will be very easy. Through this activity the teacher can explain that shadow is not your true image like a dishonest friend whereas the mirror gives your true image like an honest friend. You can explain to them that a good friend is like a mirror. He appreciates your good qualities as well as criticises your bad ones. Here the teacher can highlight the importance of honesty in friendship. One should be honest and should be like a mirror to your friend correcting him when he is not doing the right thing.

Things needed: A mirror.

B.4. This activity is a story discussion. This is the story of an unhappy girl who always wanted to be looking beautiful. She purchased a mirror so that she can see her beauty always. But to her shock she saw that her image was not that beautiful as she wanted to be. She did all the things she could do, to make herself look beautiful, but in vain. One day while she was walking back home from school, she saw an old lady who was very weak and tired, sitting on the roadside. She approached her and asked her how she can help. The old woman started crying and told her that she was hungry and had not eaten anything for two days. The girl took the old lady to her house and gave her some bread and milk. The old lady was overwhelmed with joy and said, “Dear young woman, you are an angel and you are the most beautiful person I have ever seen”. The girl felt happy and satisfied. That day when she looked in the mirror she was surprised. She looked really beautiful and happy. Her inner happiness was radiating out, making her the most beautiful human being. The world is like a mirror. It gives back to us what we give it. If you do good to the world the world will be good to you. If you are kind to others, others will also be kind to you. When you are kind to others your mind will become satisfied and happy and you will feel that the world is a beautiful place.

Discussion on this story can be done on the following points.

- Why the girl felt that she is not beautiful?
- What act of her made her beautiful?
- What do you think you should do if you want the world to be good to you?

V. Assignments

C.1. Home Assignment.

The student can stand in front of a mirror and look at his/her reflection and write five good things and five bad things he felt about him/her. This will be a self-reflection experiment. Ask him/her to tell himself that he is good and he can be the best. And that he will try to get rid of the bad qualities he is having. He can give the teacher the list of bad qualities he is planning to get rid of. The teacher can encourage him to do that. This experiment improves the self-esteem of the child and helps him to become confident and positive in life. This also helps him to develop life skills like self-improvement and goal setting.

Resources

References:

- NCERT Class VI Science Textbook

Topic	Values / Life skills integrated & imbibed	Activities
Electricity and Circuits	<p>Core Values considered : Self realisation, Teamwork and Gratitude</p> <p>Sub Values: Harmony</p> <p>Life skills: Expressing Gratitude and Communication Skills</p>	<ol style="list-style-type: none"> 1) Activity 1: Demonstration and discussion 2) Activity 2: Group game using cards. The cards can be made by the teacher. 3) Activity 3: Demonstration and discussion. 4) The home assignment -To be done at home by the student and can be submitted to the teacher..

Materials / Resources needed

Some active and inactive cells, a bulb, connecting wire , stop watch and cards which can be prepared by the teacher.

Description (of the points of discussion)

This chapter helps children to comprehend the various uses of electricity and how an electric cell produces electricity. It also illustrates the difference between conductors and insulators and also demonstrates the flow of electricity in a circuit and the important components of a circuit.

The most important points of discussion here are:

- 1) Just like we cannot distinguish an active cell from an inactive one, just by seeing it from outside, until we connect it to a circuit, the inner potential of each one of us remain hidden, until we channelise it.
- 2) How electric circuits symbolises teamwork and collective effort, with every component in a circuit, playing an important role. Thus in a team effort everyone should sincerely deliver his/her responsibilities, for the whole activity to be successful.
- 3) Another important aspect discussed here in this unit is that a bulb cannot glow on its own.. This can be related to the fact that behind every person's success there are a number of people contributing to it. The feeling of gratitude should be there in us, towards all those who have played an important role in our success. Here in the home activity section, the children get a chance to write precisely about an important person behind their success, which helps to improve their communication skills.

Unit 12**Electricity and Circuits****Self-Realisation, Team work and Gratitude****I. Introduction**

This chapter is an introduction to the most versatile form of energy called electricity. It helps children to understand the various uses of electricity and how an electric cell produces electricity. It also illustrates the difference between conductors and insulators and also demonstrates the flow of electricity in a circuit and the important components of a circuit.

While teaching the various aspects of an electric circuit the teacher can enlighten children with values like team work and gratitude. It can also help the students to understand the importance of self realization , that helps to channelize their inner potential to achieve their goals.

The core values focused upon are self-realization, team work, gratitude and sub value like harmony.

II. Learning Objectives / Outcomes

Through this unit, the students will achieve the following grade appropriate academic and value based goals.

- 1) Learn the construction of an electric cell and observe the fact that current flows from positive terminal to negative terminal of the cell.
- 2) Learn how an electric bulb glows and different elements of a circuit and their role.
- 3) Comprehend the role of a switch in the circuit.
- 4) Distinguish between conductors and insulators.
- 5) Appreciate the importance of teamwork while studying the role of different elements in an electric circuit.
- 6) Understand why self-realization is important to identify one's potential and channelize it to make it productive.
- 7) Develop gratitude towards all those people who have played a vital role in one's success.

III. Process & Action Plan

School is one of the major platforms that influence children in developing attitude and values. Teacher has a major role in imparting moral values to children through experimental and participatory modes of learning. Various activities listed here helps the students to imbibe values which are intended to be inculcated in them.

The values and life skills integration within this unit may follow the following process and action plan, as depicted in the flow chart below:

A. Introduce the context activity:

Discussion. Refer A



B. Carry out the varied activities in class (given below) in the sequence specified.



1. This is an activity that helps students to understand the importance of self-realization & identifying one's own hidden potential & developing them. Refer B.1.

2. This is a game that helps children to understand the importance of team work and coordination. Refer B.2.

3. This is an open discussion and self-expression activity that teaches children to be grateful to people who are behind their success. Refer B.3.



C. Aid generalization of the concepts learnt, through assignments (given below).



1. Home Assignment can be given to students for them to understand the value of gratitude. Refer.C.1.

While it would be ideal to expose the students to all the activities as given, and the discussion that would ensue, you may choose as per your convenience and availability of time, the activities that would be relevant to the content being taught and/or suited to the cognitive and emotional maturity of the students.

This topic incorporates the **core approach** - Knowing, Understanding, Valuing and Acting the values embedded in the topic.

The **core values** being considered are *self-realisation, team work and gratitude and sub value like harmony*.

The unit also provides the scope to develop the following life skills in the students like *expressing gratitude and precise communication skills*.

IV. Activities & Related Discussion

A. The teacher can start the lesson by asking students to give examples of electric gadgets used in their home. Then he/she can discuss and if possible, show pictures of, how people used to live without those gadgets and what gadgets they used for the same purpose.

For e.g. How our grandmothers used stone grinders instead of electric grinder. The teacher can ask them to make a list of such gadgets .

B. Activities:

B.1. This activity demonstrates the importance of self-realization. Self-realization means fulfilment by oneself of the possibilities of one's character or personality. In this context, it is used in a sense of realizing one's hidden potential and developing them to bring out the best of oneself. The activity sequence is described below:

1. Keep some good working cells and bad inactive cells on a table.
2. Ask the children to identify the active cells by just looking at them. They may not be able to identify the good and bad ones.
3. Then give them a bulb and a conducting wire and ask them to find out which all are working. They can check it by making appropriate connections and make the bulb glow.

The teacher can now explain that the hidden potential of a person may not be visible from outside, like the energy inside the cells. But when you identify and channelize the inner potential of a person, he/she can accomplish many things in life, just like how the active cells make a bulb glow when a proper channel for releasing their energy is available. This will encourage students to identify and bring out the talent and energy in them which can help them to achieve success in life.

Things required: Few active working cells and inactive ones, a connecting wire and a bulb.

B.2. This activity is a group card game which can be played in the classroom. The teacher can divide the students into teams of ten each. He/she can prepare some 20 to 30 cards with names/pictures of some insulators along with that of a bulb, electric cell, connecting wire and switch. The game proceeds as follows:

1. The cards are shuffled well and kept on the table.
2. Each team is given one minute to play. The teacher can use a stop watch to monitor the time.
3. One after the other, each member of the team can select a card from the pile and see whether he/she has got any of the circuit elements like the bulb, connecting wire, cell or switch.
4. Those who get these circuit elements can form the circuit by holding hands in the proper order.
5. The team that completes a circuit in minimum time wins.

The teacher can explain to the children that this activity is aimed at appreciating team work and coordination. Every component in a circuit has an important role to play just like each member in a team. They should work in harmony with others to achieve a common goal. Students can also be made to understand the general fact that in this world every living and nonliving entity has its own place and role and all should live in harmony for this world to be wonderful.

Things needed: Cards (20 to 30 numbers, which the teacher can make) and a stop watch.

B.3. This activity is a demonstration cum discussion. The teacher can keep a cell and a bulb close to each other. When they are kept close, then also the bulb will not be glowing. But if a connecting wire is used to connect the bulb to the cell the bulb start glowing. This demonstrates the fact that no bulb glows on its own. It requires a connector/conductor to help it glow. Likewise, behind the success of every individual there are many other people who have helped him/her to be successful. The teacher can then highlight the importance of being grateful to all those people who are behind one's success. Gratitude is a very important virtue which you have to express to all those who help you to succeed. The teacher can ask students to say a few words about those whom they think are helping them to succeed.

Things needed: A dry cell, a bulb and connecting wire.

V. Assignments

C.1. Home Assignment.

As a continuation of activity (3), the teacher can ask the students to write a small paragraph about a person whom they consider as the most important, behind their

success. The student can also include the answers to the following questions also in the writeup.

- Why do you consider him/her as the most important?
- Are you grateful to him/her? If so, how are you going to express it?

This assignment helps the children to develop the skill of expressing gratitude and also improving their communication skills.

Resources

References:

- NCERT Class VI Science Textbook.

Topic	Values / Life skills integrated & imbibed	Activities
Fun with magnets	<p>Core Values considered : Positivity, Sincerity, Selflessness and Determination</p> <p>Other Sub-Values: Kindness and Love.</p> <p>Life skills: Leadership Skills and Relationship building Skills, writing and comprehension skills.</p>	<p>Activity 1) Demonstration and Discussion. The demo gives the students an insight into how to choose good from bad and why it is important. This helps to improve the relationship building skills of the students.</p> <p>Activity 2) Demonstration and Discussion. To highlight the fact that if you selflessly help people they will not leave you. It also throws light upon the fact that the world gives back what you give it.</p> <p>Activity 3) Game activity which helps to enhance leadership skills and the art of taking people along with you to reach the common goal.</p> <p>Activity 4) Home assignment This enhances the writing and communication skills of students, along with their comprehending power.</p>

Materials / Resources needed

A bar magnet, nonmagnetic and magnetic materials, pieces of paper, sawdust, paper clips, magnetic compass, measuring tape, stop watch, place markers, route map(Prepared by the teacher like the sample given).

Description (of the points of discussion)

This chapter explains how magnetism was discovered, what are magnetic and nonmagnetic materials and also discusses about the north and south poles of a magnet. This unit also involves the study of magnetic compass and how it can be used for finding directions.

The important topics discussed are

- 1) Discovery of magnetism and behaviour of magnetic and non-magnetic materials.
- 2) The poles of a magnet and how they interact.
- 3) The north-south orientation of a magnetic compass and its use in navigation.
- 4) How a magnet can be made from another magnet.
- 5) The fact that a positivity mind spreads positivity around it, which attracts others to it. Deeds of kindness and love gets you back the same response. If you do good, good things will come to you like a magnet with its inner energy attracts other magnetic materials.
- 6) The magnet also teaches you to be selfless in helping others and the compass symbolises determination of a leader to reach the goal

Unit 13**Fun with Magnets****Positivity, Sincerity, Selflessness and Determination****I. Introduction**

This is an introductory chapter to the world of magnetism, which is a fascinating invisible force prevailing not just everywhere on the earth but the whole universe. This chapter explains how magnetism was discovered, what are magnetic and nonmagnetic materials and also discusses about the poles of a magnet. It also describes how a compass works and how to make your own magnet.

Magnetism can be explained to the students as an invisible inner force that attracts other objects just like a person who is good at heart attracts other people. The invisible forces alluded here are love and kindness. It can also be related to optimism and positivity which attracts others. A magnetic compass which orients itself only in the north-south direction, can be presented as a symbol of determination.

The core values focused upon are positivity, sincerity, selflessness and determination with associated values like kindness and love.

II. Learning Objectives / Outcomes

Through this unit, the students will achieve the following grade appropriate academic and value-based goals.

- 1) Know about the history of magnets and about their discovery.
- 2) Distinguish between magnetic and non-magnetic materials.
- 3) Observe how the north and south poles of magnets interact.
- 4) Explain how a magnetic compass works and observe how a magnet orients itself in north-south direction.
- 5) Appreciate the fact that one should be like a magnet attracting every good person towards oneself, through one's deeds of kindness and love.
- 6) Learn to approach life with positivity so that everything around us turns positive for you, just like a magnet magnetizes other nearby magnetic objects.
- 7) Know how to become a leader with the skill of orienting people towards a common goal with the determination to reach the goal, like a magnetic compass.

III. Process & Action Plan

Through this lesson, the teacher can point out that our mind is like a magnet which will attract only those who have similar thoughts and feelings like us. This is reflected in our friendships too. The teacher himself /herself should be acting like a leader and a motivator for the students and help them identify the qualities required for a good leader.

The values and life skills integration within this unit may follow the following process and action plan, as depicted in the flow chart below:

A. Introduce the context activity:
Discussion and chart making. Refer A



B. Carry out the varied activities in class (given below) in the sequence specified.



1. This is a game activity, that demonstrates building relationships with the right people.
Refer.B.1.

2. This activity is a demonstration cum discussion of how positive people fill positivity in people around them & how selfless minds attract others. Refer.B.2.

3. This is a game activity shows how a compass can be compared to a goal-oriented leader.
Refer B.3.



C. Aid generalization of the concepts learnt, through assignments (given below).



The home assignment given to the students can enhance their writing and comprehension skills.

While it would be ideal to expose the students to all the activities as given, and the discussion that would ensue, you may choose as per your convenience and availability of time, activities that would be relevant to the content being taught and/or suited to the cognitive and emotional maturity of the students.

This topic incorporates the **core approach** - Knowing, Understanding, Valuing and Acting the values embedded in the topic.

The **core values** being considered are *positivity, sincerity, selflessness and determination* along with other associated sub values like *kindness and love*.

The unit also helps to develop *leadership skills and relationship building skills* in the students through the various activities. The home assignment helps the students to improve their *comprehension and writing skills*.

IV. Activities & Related Discussion

A. The teacher can start the lesson with a discussion on the various magnetic substances available in our homes. The students can be asked to make a list of such items and their uses in a chart and if possible, can stick pictures of these items on it.

B. Activities:

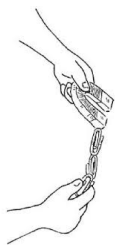
B.1. This activity can be done in the classroom with student participation. The teacher can keep a pile of objects like sawdust, paper, non-magnetic materials like eraser, plastic buttons etc., along with magnetic materials like iron nails, screws, pins, coins, clips etc. Students can then be asked to pick maximum number of items from the pile using a magnet and drop them in a jar, within a limited time period (say 30 seconds). The student who collects the maximum number of items within the given time limit can be declared as the winner. Remember that he/she should not touch any item with his hands and should lift only one item at a time with the magnet.

The teacher can now explain that magnet attracts only magnetic materials to it and can elaborate on the differences between magnetic and non-magnetic materials. There are good and bad people in this world. Students should be told that while choosing friends, number does not matter, what matters is quality. They should build relationships only with those people who are like-minded and sincere, qualities which they should also reciprocate in friendships. This also emphasizes the fact that our mind is like a magnet whose selfless actions attracts others and we should always think of the wellbeing of others in all our actions.

Things required: A magnet, some non-magnetic and magnetic substances.

B.2. This activity is a demonstration cum discussion. The teacher can demonstrate the scientific fact that a magnetic material, when in contact with a magnet, would also behave

like a magnet and would start attracting other magnetic substances. Take a bar magnet and bring a metallic paper clip (should be made of magnetic substance) near it. The clip gets attached to the magnet. The magnet has now induced magnetism in the paper clip. Now bring another paper clip near the attached clip. It will also get attracted and gets attached to the first clip. This way you can make a chain of magnets as shown in the figure below.



This activity helps students to appreciate the importance of positivity and optimism. The magnet is like a positive person who instils positivity in people around him/her. If you are happy you will make others also happy. If you are kind to people, they will reciprocate the same feelings to you. Just like the paper clips which came in contact with the magnet, adopted magnetic behaviour, you can expect others to give back what you give to them. So, encourage the children to be kind and loving to others so that they will also get the same in return.

Things required: A bar magnet, paper clips.

B.3. This is a game activity that can be played in a ground or a big open space like a hall. The teacher can ask students to form a team of three. Then he/she can give them a route map which she has already prepared, leading to a treasure., a sample of which is given below and the game can proceed as per the instructions. The teacher can mark the starting point with a place marker.

Sample route map:

- 1) Start. Go forward 1 m in north direction.
 - 2) Then move eastward for another 2 m.
 - 3) Go forward in northeast direction for 5 m.
 - 4) Turn to northwest direction and walk 2 m.
 - 5) Turn towards west and move 2 m.
 - 6) Now take the northeast direction and move 3 m. You reached the destination.
- One member from the team of three, can identify the direction using a magnetic compass and another member can measure the distance with a tape and proceed as per the instruction.
 - The third member can read aloud the directions from the route map given.
 - The team that reaches the destination in minimum time will be the winner.

This is a fun game that makes the children realise that a leader can be compared to a compass who always helps you to reach the goal without losing the focus. The teacher can also highlight the fact that a leader should also take every team member along with him, in the right direction, so that the goal can be accomplished faster.

Things required: Route map (the teacher can make any map of her preference as shown in the sample), a magnetic compass, place marker, stop watch.

Note: *This game can be modified into a treasure hunt if you have enough space in your school.*

V. Assignments

C.1. Home Assignment.

“A good leader has a compass in their head and a magnet in their heart.” - Howard G. Hendricks

Students can be given a writing assignment on the quote given above. Let them make a comparison between a leader and a compass and write about what they comprehend from the quote. This will help to enhance their writing skills as well as comprehension skills. The teacher can discuss the quote in the class and give the children necessary inputs.

Resources

References:

- NCERT Class VI Science Textbook
- Picture courtesy: www.pinterest.com.

Unit 14

Water

Topic	Values / Life skills integrated & imbibed	Activities
Water	<p>Core Values considered : Unity, Humility, Flexibility, Empathy, Share and care</p> <p>Other Sub-Values: Hope, Positivity, Simplicity and Determination.</p> <p>Life skills: Observation skills and Innovation skills</p>	<p>The teacher introduces the lesson by explaining the significance of water in our daily life and start a discussion.</p> <p>Act.1. Demonstration and discussion activity that brings to light the humble nature of water.</p> <p>Act.2. Experimental activity</p> <p>Act.3. Fun game on the need for conserving water</p> <p>Assignment.- A writing assignment</p>

Materials / Resources needed

Act.2.Things needed: a glass jar, dish that fits the top of the jar, hot water, ice, refresher spray.

Act.3.Things required: A board/chart (which the teacher can prepare), a dice, some beads (100 nos.).

Description (of the points of discussion)

This chapter elaborates on the sources of water, how water takes different forms, stages in water cycle, why water needs to be conserved and how we can do it. The discussion points are:

- 1) the importance of water in our life and identify the various sources of water
- 2) Learn about transpiration and evaporation, the methods by which water is replenished in the environment.
- 3) water cycle and the different forms of water and its circulation in the nature.
- 4) the various methods adopted for water conservation and realise the importance of sharing and caring for others.
- 5) how rains are beneficial , but at the same time how excess rain can cause harm to us. Shows that the nature gives us back what we do to her.
- 6) The oneness in nature and the virtues exhibited by water like flexibility, humility, and empathy.
- 7) the power of positivity of water and its determination to reach a goal.

Unit 14**Water****Unity, Humility, Flexibility, Empathy, Sharing and caring****I. Introduction**

March 22 - UN World Water Day

Water is the elixir of life. Without water this planet would have been barren, where no life could survive. This chapter elaborates on the sources of water, how water takes different forms, stages in water cycle, why water needs to be conserved and how we can do it.

This unit gives the teacher an opportunity to highlight the fact that drinking water is a precious resource. We can learn from water the virtues like simplicity, flexibility and empathy. The fact that water tries to flow from a higher level to a lower level can be shown as a symbol of humility. The nature of water to find a way out of every situation by overflowing, percolating, evaporation etc. sends a message of hope, positivity and determination. The water cycle itself is manifestation of oneness among various entities in nature.

The core values focused upon are Unity, Humility, Flexibility, Empathy and Sharing and caring along with sub values such as Hope, Positivity, Simplicity and Determination.

II. Learning Objectives / Outcomes

Through this unit, the students will achieve the following grade appropriate academic and value based goals.

- Realise the importance of water in our life and identify the various sources of water.
- Learn about transpiration and evaporation, the methods by which water is replenished in the environment.
- Know about water cycle, different forms of water and its circulation in nature.
- Comprehend the various methods adopted for water conservation and realise the importance of sharing and caring for others.
- Understand how rains are beneficial, but at the same time how excess rain can cause harm to us.

- Appreciate the oneness in nature and the virtues exhibited by water like flexibility, humility, and empathy.
- Know about the power of positivity of water and its determination to reach a goal.

III. Process & Action Plan

A good teacher is one who sets very high limits for their students. He/ She should help children to succeed both in academics and in life. Students should be given proper training to face life with a smile and a positive attitude. Linking life experiences of the teacher with academic principles will help students to achieve this.

The values and life skills integration within this unit may follow the following process and action plan, as depicted in the flow chart below:

A. Introduce the context activity:

Discussion. Refer A



B. Carry out the varied activities in class (given below) in the sequence specified.



1. This is a demonstration cum discussion which helps children to appreciate the qualities of water
Refer B.1.

2. This is an experimental activity to demonstrate water cycle.
Refer B.2.

3. This is a fun game to spread the awareness on water conservation.
Refer B.3.



C. Aid generalization of the concepts learnt, through assignments (given below).



1. Home Assignment can be given to students to come up with innovative ideas. Refer.C.1.

While it would be ideal to expose the students to all the activities as given, and the discussion that would ensue, you may choose as per your convenience and availability of time, the activities that would be relevant to the content being taught and/or suited to the cognitive and emotional maturity of the students.

This topic incorporates the **core approach** - Knowing, Understanding, Valuing and Acting the values embedded in the topic.

The **core values** being considered are *Unity, Humility, Flexibility, Empathy and Sharing and caring* along with sub values such as *Hope, Positivity, Simplicity and Determination*.

The unit also provides the scope to develop the following life skills in the students like *Observation skills and Innovation skills*.

IV. Activities & Related Discussion

A. The teacher can introduce the lesson by explaining the significance of water in our daily life and start a discussion by asking some questions like the following:

- Where does the drinking water in your house come from?
- What are the other sources of water?
- Is sea water safe to drink?
- What percentage of our population have access to drinking water?
- How much water do you use for brushing and bathing?

The teacher can urge children not to waste water and try to save as much water as possible, during their daily routine activities. He/ She can also educate children that they should think about the millions of people who have no access to safe drinking water and hence should act responsibly so that water is available to all, including plants and animals. One should always be ready to share and also care for all the living beings and ensure that every resource is available for all beings on this earth.

B. Activities:

B.1. This is a demonstration and discussion activity that brings to light the humble nature of water. First of all, let us observe the properties of water.

- It is a colourless, odourless, tasteless and neutral liquid, which shows its simplicity.
- Fill containers of different shapes with water. Water is ready to take the shape of the container which shows its flexibility and empathy. It can be compared to the ability to understand the feelings of others by being in their shoes.
- Observe that water is always ready to flow from a higher level to lower level which shows its humility.
- Try putting water into soil where it will percolate. Try to keep it in a vessel, it will

evaporate. Pour it in a beaker, it will overflow. Thus, water tries to find a way to circumvent any situation and is full of positive energy, hope and determination. How tough the path is, a river is determined to flow towards the ocean and reach there.

The teacher can elaborate on these properties of water and inspire children to be similar to water in their life. Try to inculcate in them the values, discussed above, which will help them in their overall development.

B.2. This is an experimental activity to be done with teacher's assistance in the class. This is a demonstration of the water cycle and how clouds are formed.

- Boil water. Fill a jar with one third hot water.
- Tell students that the steam represents the water rising from lakes and oceans. Tell them that the ocean is not hot, we are just speeding up the process. This is an experiment.
- Spray a little refresher into the jar. This represents the dust in the air. Cloud droplets form around particles.
- Put a dish on top of the jar and put ice in it. See diagram for set up. This represents the cooling effect high up in the air.
- You will see some faint swirling of the steam inside the jar. Let the students look closely at the clouds.

Things needed: a glass jar, dish that fits the top of the jar, hot water, ice, refresher spray.

It can be concluded that throughout the cycle, water has taken different forms, gets converted from liquid to vapour and vapour to liquid, as the situation demands. The teacher can elaborate on the importance of being flexible, to be successful in life. One should not be egoistic and should be able to adapt to any situation and go ahead in life, just like water. It also helps children to imbibe the value of unity among all life forms. The same water is taking different forms, but in reality, they are all one. Children should be made aware of the fact that we human beings differ in many things, but are part of one single entity, connected to each other by an invisible thread, just like the different manifestations of water in the water cycle.

B.3. This activity is a fun game which can be played among 4 or 5 players in a classroom. The teacher can prepare a board/chart like what is shown below.



1
Brushing (2 l)

2
Bathing (3 l)



5
Rain (5 l)



6
Washing (5 l)

4
Watering (1 l)



3
Lake (3 l)

The rules of the game and how it is played are given below:

- Each player will be given 20 beads which represents 20 litres of water. There should be a central reservoir with many beads.
- Each one has to throw the dice turn by turn and get a number which will represent an activity on the board.
- As given in the board each activity will either add or reduce some quantity of water from their stock. Rain and lake will increase your stock, while all others will decrease it. If the player loses water, he /she will remove those many numbers of beads from his stock. If he/she receives water, then he can take those many numbers of beads from the central reservoir and add to his stock.
- For e.g. a player throws the dice and gets 6 and if the number corresponds to ‘washing (5 litres)’ in the chart, then he will have to remove 5 beads from his stock. Where as, if he gets 5 that corresponds to ‘Rain (5 litres)’, then he can take 5 beads from the central reservoir and add to his stock.
- The player who could conserve water to the last will win the game.

Things required: A board/chart (which the teacher can prepare), a dice, some beads (100 nos.).

Note: The teacher is free to improvise on the games if he/she wishes.

With the help of this game, the teacher can convey the need for conserving water and how this can be implemented in daily life.

V. Assignments

C.1. This is a writing assignment which can be done in class. The teacher can ask children to write the auto biography of a water molecule. The teacher can explain what is an auto

biography, giving examples and also give an idea of what they have to write. The water molecule will go through all the stages of water cycle which they can elaborate in an interesting manner like a story. Children will enjoy writing this as, they will visualize the water molecule as a living entity, going through different stages in life. The best ones can be read aloud in the class.

This activity enhances the creativity and observation skills of the children, in addition to communication and writing skills.

Resources

References:

- NCERT Class VI Science Textbook.
- Experimental demonstration reference: <https://msnucleus.org>

Topic	Values / Life skills integrated & imbibed	Activities
Air Around Us	<p>Core Values considered : Equality, Interdependence, Integrity, Humility</p> <p>Other Sub-Values: Generosity and Selflessness.</p> <p>Life skills: Critical thinking and writing skills.</p>	<p>A. The teacher introduces the lesson pointing out that air is omnipresent though we cannot see it but can feel it.</p> <p>Act.1. Demonstration cum discussion activity</p> <p>Act.2. A chart making activity</p> <p>Act.3. Video Demo of how plants take in carbon dioxide and give out oxygen</p> <p>Home Assignment: Prepare a write up.</p>

Materials / Resources needed

Act.2.-Things needed: Chart paper and colours.

Act.3.-A TV to show the video clipping or a computer and projector .

Description (of the points of discussion)

This chapter throws light upon the versatility of air and its various manifestations.

The points discussed are:

- 1) Air is all around us which reveals itself as a cool breeze, wind, or storm. It is also present in soil and water and supports life there.
- 2) the constituents of air like various gases, water vapour, dust and smoke.
- 3) the importance of air, for living organisms and how the oxygen balance is maintained in the atmosphere. Recognise the interdependence between various life forms on earth.
- 4) The nature of major constituents of air like oxygen and nitrogen and appreciate the virtue of integrity shown by them.
- 5) Relate values like equality, humility and generosity with the nature of air.
- 6) Realise how self-control is important in life by observing the behaviour of air.

Unit 15**Air Around Us****Equality, Interdependence, Integrity, Humility****I. Introduction**

Air is present all around us, but we cannot see it. But we cannot live without that air. It enters and exits our body without our knowledge. When it manifests itself as a breeze, wind and storm, we can feel it. It is a mixture consisting of many gases along with particles like dust and smoke. The oxygen -carbon dioxide balance in air is very important for sustenance of life on earth.

This chapter throws light upon the versatility of air and its various manifestations. The chapter can help in making children realise the aspect of equality and oneness among living organisms. It also elaborates on the constituents in air and how their balance is maintained. This chapter will provide an insight into interdependence of living beings on earth.

The core values focused upon are *Equality, Interdependence, Integrity and Humility and sub values like Generosity and Selflessness.*

II. Learning Objectives / Outcomes

Through this unit, the students will achieve the following grade appropriate academic and value-based goals.

- Be aware of the fact that air is all around us which reveals itself as a cool breeze, wind, or storm. It is also present in soil and water and supports life there.
- Know about the constituents of air like various gases, water vapour, dust and smoke.
- Realise the importance of air for living organisms and how oxygen balance is maintained in the atmosphere. Recognise the interdependence between various life forms on earth.
- Comprehend the nature of major constituents of air like oxygen and nitrogen and appreciate the virtue of integrity shown by them.
- Identify air as an everlasting source of energy which can help us to tide over energy crisis.
- Relate values like equality, humility and generosity with the nature of air.

III. Process & Action Plan

Teachers are revered and respected next to mother and father in Indian culture. A student spends most of his time during a day in the school. He / She will be greatly influenced by teachers. It is the responsibility of the teacher to mold students into virtuous human beings, thereby play an important role in their personality development.

The values and life skills integration within this unit may follow the following process and action plan, as depicted in the flow chart below:

A. Introduce the context activity:
Discussion and chart making. Refer A



B. Carry out the varied activities in class (given below) in the sequence specified.



1. This is a demonstration cum discussion which helps children to appreciate the qualities of air
Refer B.1.

2. This is a chart making activity to demonstrate constitution of air.
Refer B.2.

3. This is a video demo and discussion which helps to show how oxygen is given out by plants
Refer B.3.



C. Aid generalization of the concepts learnt, through assignments (given below).



1. Home Assignment helps students in improving their critical thinking and writing skills. Refer.C.1.
Refer.C.1.

While it would be ideal to expose the students to all the activities as given, and the discussion that would ensue, you may choose as per your convenience and availability of time, the activities that would be relevant to the content being taught and/or suited to the cognitive and emotional maturity of the students.

This topic incorporates the **core approach** - Knowing, Understanding, Valuing and Acting the values embedded in the topic.

The **core values** being considered are *Equality, Interdependence, Integrity and Humility and sub values like Generosity and Selflessness.*

The unit also provides the scope to develop the following life skills in the students like Critical thinking and writing skills.

IV. Activities & Related Discussion

A. The teacher can introduce the lesson pointing out that air is omnipresent though we cannot see it but can feel it. Irrespective of whether a person is rich or poor, young or old, man or woman, black or white, everybody gets equal share of air. The air we breathe in may have already passed through someone else's body. This aspect of air teaches us the fundamental truth that nature never discriminates. Everybody is treated equal by nature and all belong to one entity. Another virtue that is taught by air is humility. It enters every one's body silently and takes away the waste generated in the body i.e. carbon dioxide. It is a selfless service without expecting anything in return. The teacher can urge children to emulate air in their life, by being selfless.

B. Activities:

B.1. This is a demonstration cum discussion activity. The teacher can start the discussion by asking the following question:

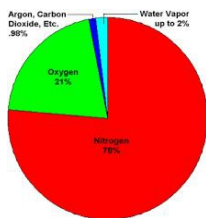
Can we feel the air? If yes, how?

The question can be answered with the help of the following demonstration.

Take a thin book and start fanning gently. Now you may feel a breeze and a comfortable feeling. This is how you can feel the air. Here the teacher can correlate happiness with air. Happiness is present everywhere but we cannot feel it, until we start giving it generously to others. When you start giving happiness to others you will also feel happy just like the cool breeze. Students thus can identify generosity as an important virtue that makes you feel good. The more you give the more happiness you receive.

B.2. This is a chart making activity and discussion on the constitution of air. The teacher can ask students to make a pie-chart showing the constitution of air as shown below.

This chart helps them to understand that the major constituent of air is nitrogen followed



by oxygen. During discussion about these constituents, the teacher can point out an interesting fact to students that though air is a mixture of these gases, they do not lose their individual properties. Even though nitrogen which is not a supporter of combustion is there in large proportion, it cannot influence and change the property of oxygen, which supports combustion. This is why you have to cutoff oxygen to extinguish a fire. Oxygen thus teaches us integrity. Even though in less quantity, when compared to nitrogen it does not sacrifice its principle. The teacher can highlight the

importance of integrity as a very important virtue in life. If one has to gain trust of others, then one should stick to principles, even though majority may be against it.

Things needed: Chart paper and colours.

B.3. This is a video demonstration of how plants take in carbon dioxide and give out oxygen, during photosynthesis and thus help to maintain the oxygen balance in the atmosphere.

The link is given below:

<https://www.youtube.com/watch?v=cC49fbTCCDc>

The teacher can explain the role of plants in maintaining oxygen levels in the atmosphere and thus emphasize the fact that we all are interdependent. All living beings give out carbon dioxide during the process of respiration and it increases the level of carbon dioxide in the atmosphere. The plants use carbon dioxide to prepare food and give out oxygen. This activity will make children appreciate the mutual dependence of all living beings and also teach them the importance of conserving plant life.

V. Assignments

C.1. Home Assignment.

Students can be asked to make a write up on the activities in their daily life, that will contribute to increase in carbon dioxide levels in the atmosphere. They can be asked to elaborate on how we can reduce carbon dioxide emissions and save this planet from global warming. This activity can improve their environmental awareness and also their critical thinking skills.

Resources

References:

- NCERT Class VI Science Textbook.
- Picture courtesy: <https://www.atmo.arizona.edu>

Topic	Values / Life skills integrated & imbibed	Activities
Garbage In garbage Out	<p>Core Values considered : Simplicity, Inner harmony and Peace, Hygiene, Creativity, Environmental awareness</p> <p>Other Sub-Values: Responsibility and Curiosity.</p> <p>Life skills: Communication skills ,Creative skills and Soft skills like doing PowerPoint presentations.</p>	<p>The teacher can start the discussion by giving an overview of how much quantity of waste materials are generated by each one of us and how it affects our environment. SwachBharat Mission also can be discussed.</p> <p>Act.1.Chart preparation activity: Act.2.Discussion which can be initiated by narrating a true story. followed by video demo Act 3.This activity is a real incident narration and discussion that throws light upon inner harmony and peace of mind . Home Assignment: Write the life cycle of an object.</p>

Materials / Resources needed

Act.1.-Achart paper and colour pens.

Act.2.A TV to show the video or a computer and projector.

Description (of the points of discussion)

This chapter deals with the three important R's of waste management namely Reduce, Reuse and Recycle.

The important topics discussed are:

- 1) Identify and reduce the activities that generate garbage and the problems associated with it, and also study the various methods of garbage disposal. This will also teach them the value of simplicity in life.
- 2) The importance of segregating garbage into bio-degradable and non bio-degradable items and learn about composting and recycling of wastes.
- 3) Different ways to recycle waste materials and reusing them, which enhances the creativity of the children.
- 4) Improve environmental awareness among children and also the significance of proper waste disposal in improving hygiene.
- 5) How to achieve inner peace and harmony, by getting rid of bad feelings and negative thoughts just like we do waste disposal.

Unit 16**Garbage in, Garbage out****Simplicity, Inner harmony and Peace, Hygiene, Creativity,
Environmental awareness****I. Introduction**

“We do not inherit the Earth from our ancestors, we borrow it from our children”

Human development was always associated with the production and consumption of commodities. But a lot of unwanted substances are generated during this process, which can harm our environment. The success of humanity lies in the effective disposal or recycling of such unwanted substances, in an eco-friendly manner. This chapter deals with the three important R's of waste management namely Reduce, Reuse and Recycle.

While explaining this topic, the teacher can educate students on the importance of simplicity in life with use of limited material things which helps to reduce garbage generation. Students can be made aware of the importance of classifying things into bio-degradable and non-bio-degradable materials and discourage the use of non-bio-degradable materials like plastic. Students should be encouraged to find ways of recycling waste materials which will also help to improve their creativity. The main objective of this chapter is to develop environmental awareness in children to sustain all life forms on this earth and thus making this planet livable in future too.

The teacher can effectively use this chapter to make children realise the need for maintaining their mind also free of bad feelings and negative thoughts which are similar to garbage. They can be made aware of the fact that a garbage-free mind is peaceful with inner harmony and full of energy.

The core values focused upon are *Simplicity, Inner harmony and peace, Hygiene, Creativity, Environmental Awareness and associated sub values like Responsibility and Curiosity*

II. Learning Objectives / Outcomes

Through this unit, the students will achieve the following grade appropriate academic and value based goals.

- Identify and reduce the activities that generate garbage and the problems associated with it, and also study the various methods of garbage disposal. This will also teach them the value of simplicity in life.
- Appreciate the importance of segregating garbage into bio-degradable and non bio-degradable items and learn about composting and recycling of wastes.
- Identifying different ways to recycle waste materials and reusing them, which enhances the creativity of the children.
- Helps to improve environmental awareness among children and also the significance of proper waste disposal in improving hygiene.
- Achieve peace and inner harmony, by getting rid of bad feelings and negative thoughts just like we do waste disposal.

III. Process & Action Plan

Teachers are like life companions and role models to students. They try to connect the subjects and real life. Students see the teachers as a bridge between academics and life experiences. Teachers are a source of moral support and encouragement to students.

The values and life skills integration within this unit may follow the following process and action plan, as depicted in the flow chart below:

A. Introduce the context activity:

Discussion. Refer A 1.



B. Carry out the varied activities in class (given below) in the sequence specified.



1. This is a chart preparation activity which helps children to appreciate the concept of reducing garbage. .
Refer B.1.

2. This is real story narration and discussion about recycling of garbage.
Refer B.2.

3.This is an incident narration and discussion highlighting the significance of reducing mental garbage. Refer B.3.



C. Aid generalization of the concepts learnt, through assignments (given below).



1.This is a presentation making activity related to garbage disposal techniques. Refer. C.1.
Refer.C.1.

While it would be ideal to expose the students to all the activities as given, and the discussion that would ensue, you may choose as per your convenience and availability of time, the activities that would be relevant to the content being taught and/or suited to the cognitive and emotional maturity of the students.

This topic incorporates the **core approach** - Knowing, Understanding, Valuing and Acting the values embedded in the topic.

The **core values** being considered are *Simplicity, Inner harmony and peace, Hygiene, Creativity, Environmental Awareness* and associated sub values like *Responsibility and Curiosity*.

The unit also provides the scope to improve the following life skills of the students like communication skills, creative skills and soft skills like doing PowerPoint presentations.

IV. Activities & Related Discussion

A.1. Discussion: The teacher can start the discussion by giving an overview of how much quantity of waste materials are generated by each one of us and how it affects our



environment. The teacher can then elaborate on the **Swachh Bharat Mission (SBM) or Swachh Bharat Abhiyan (SBA) or Clean India Mission** which is a country-wide campaign initiated by the Government of India in 2014 to eliminate open defecation and improve solid waste management (SWM).

Children can be given a home assignment to prepare a write up about the Swachh Bharat Mission. They being the future of this country should be urged to take the responsibility of ensuring cleanliness and hygiene in their home as well as in areas of their activities.

B. Activities:

B.1. Chart preparation activity: Each student should prepare a chart on 3 items which they are using daily (if possible, they can bring pictures from home and paste it.) and how it can be substituted with reusable materials. An example is shown below.

This activity can be an encouragement for children to reduce the daily waste generated by them and make them feel responsible towards our environment. They can also be made aware of the large number of outfits they purchase, but sparingly use, that contributes to creation of garbage. Educate them to live a simple life with minimal things and thus generate less garbage.

B.2. This is a Discussion which can be initiated by narrating a true story

“Bisman Deu, a 15-year-old girl from Chandigarh invented a building material called

‘Green wood’. This product is made from wasted rice husk, which is otherwise burnt by farmers and has been a leading cause for severe air pollution in Northern India. Her curiosity about the rising pollution, self-driven research on the properties of rice husk and experiments in her mother’s kitchen, led her to discover this remarkable product which may go a long way to curb air pollution and save lives. “(Source: www.forbes.com).

The teacher can ask children to come up with ideas that can help them dispose the garbage that are generated in our household. They can be made to write down their ideas of how to recycle waste materials that are daily generated by them like paper, pencil shavings, cartons etc. This will enhance their creativity and also encourage them to think about innovative ideas of recycling.

The picture shown here is a rooster made from waste plastic bags.



The teacher can also show them a video on paper recycling whose link is given below.

Paper recycling video :

<https://www.youtube.com/watch?v=ZQNAkVMqknU>

Students can be encouraged to try the same at home or school and get a hands-on experience in recycling.

The teacher can also show them a video on composting and its advantages whose link is given below.

<https://www.youtube.com/watch?v=dRXNo7Ieky8>

B.3. This activity is a real incident narration and discussion that throws light upon inner harmony and peace of mind and why you should clean and nourish your mind occasionally and should not allow garbage to accumulate there. The teacher can narrate to students the famous garbage truck story given below.

One day, I hopped into a taxi and took off for the airport. We were driving in the right lane when suddenly, a black car, jumped out of a parking space right in front of us. My taxi driver slammed the brakes, skidded, and missed the other car by just inches! The driver of the other car whipped his head around and started yelling at us.

My taxi driver just smiled and waved at the guy. I mean, he was really friendly.

So, I asked, "Why did you just do that? This guy almost ruined your car and sent us to the hospital!"

This is when my taxi driver taught me what I now call, 'The Law of the Garbage Truck'.

He explained, "Many people are like garbage trucks. They run around full of garbage, full of frustration, full of anger, and full of disappointment. As their garbage piles up, they need a place to dump it and sometimes they'll dump it on you. NEVER take

it personally. Just smile, wave, wish them well, and move on with the routine life." Don't take their garbage and spread it to other people at work, at home or on the streets.

Now start the discussion asking some questions.

- Have you ever come across such a situation? How will you react in such a situation?
- Do you agree with the taxi driver?
- Have you ever kept watch on the good and bad thoughts that come to your mind?
- Have you ever tried to get rid of the bad feelings and negative thoughts that accumulate as garbage in your mind?

The children can be informed about how their inner harmony and peace are important to lead a successful healthy life. They should train their mind to avoid negative feelings like anger, frustration, jealousy, self-centeredness etc. and also not to collect / accumulate it from others who are trying to dump it on you. You can face the world with a smile and a clear mind.

V. Assignments

C.1. This is an activity which children can do at home. Children can be asked to write the life cycle of an object which they use daily. For eg. mobile phone. Where did it originate? Who all are using it? Where it will go after it is rendered useless? Is it bio-degradable or not? These can be summarized as a life cycle flowchart and can be presented in the class. This activity will arouse the curiosity among other children and inspire them to go into the past and future of many of the things they use. Children can be encouraged to make a presentation on the same with suitable pictures and illustrations. This will not only improve their understanding of garbage handling but also will help to enhance their soft skills like using PowerPoint software for presentations.

Resources

References:

- NCERT Class VI Science Textbook.
- Source of the incident narrated in activity B2: www.forbes.com
- Paper recycling video: <https://www.youtube.com/watch?v=ZQNAkVMqknU>
- Video on composting: <https://www.youtube.com/watch?v=dRXNo7Ieky8>
- Recycled rooster image courtesy: www.pinterest.com

SCIENCE

Grade VI

Integration of Values

Teacher's Manual

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