



Unit : 4

Creative Thinking

Activity 1 : The Creative Solution Finders

Theme: All of us face problems in our life. There is a solution to every problem. We should think creatively to arrive at the solutions.

Time Required: 1 period

Materials Needed: Two sheets of blank paper and a pencil for each student, an empty box such as a shoe box and handout

Mode: Whole class

Life Skills to be enhanced: Creative Thinking and Critical Thinking

Objectives: Students will be able to:

- use higher order thinking skills and inference skills;
- develop diversity of thought.

Getting Started: Discuss with students about why and what type of problems they generally face in their life and what is the best way to resolve them. How does creativity support problem solving?

Process:

- Explain to the students that they have to solve the problems that they consider important.
- Give each student a pencil and two sheets of paper.
- Instruct each student to write a problem question on one of his/her sheets of paper. The question may be personal, such as "*What can be done about my family's irritability in the morning?*" or it may be more political or social, such as "*How can India solve its problem of poverty?*"
- Collect the sheets of paper with questions written on them from the students. Read them one at a time and solicit solutions from the students. There should be at least two solutions for every problem.
- Continue the activity until all students have shared their problem questions and found new solutions.





Key Messages

1. For every problem there is a solution and more creatively we think better are the solutions that we get.
2. Thinking creatively while looking for solution helps us in a better way.
3. It is not always that a solution will work. We must keep in mind hit and trial method while looking for solutions.

Handout

The problems that can be discussed are:

- How to solve the issue of illiteracy in India?
- What can be done to stop parents from comparing their children with others?
- How can parents be convinced that junk food is fine to eat once in a while?
- How to avoid peer pressure?
- How to save students from the bad influence of television?
- How to save students from the bad influence of social networking sites?
- How to convince parents that music is good while studying?
- What can be done to avoid road rage?
- What can be done to save Earth from global warming?
- How to help a friend who has started smoking and is moving in a bad company?

Suggested Further Activity:

Instruct students to place their problem questions in a box. Then pick a question out of the box, read it aloud, and call on a student to share his/her solution. Several solutions can be solicited.





Activity 2 : Ms. Nature - the Scientist

Theme: The major inventions and discoveries in the world are the product of creative minds. Many living things in nature have inspired the birth of many discoveries in the world.

Time Required: 1 period

Material Needed: Worksheet

Mode: Individual

Life Skills to be enhanced: Creative Thinking and Critical Thinking

Objectives : Students will be able to:

- use higher order thinking skills and inference skills;
- find connections between the discoveries and the living things.

Getting Started:

Biology and Zoology are considered by many to be rich sources of analogies from which significant inventions can be derived. One of the most celebrated cases is the invention of the telephone. As Alexander Graham Bell wrote: *"It struck me that the bones of the human ear were very massive as compared with the delicate thin membrane that operated them; and the thought occurred to me that if a membrane so delicate could move bones so relatively massive, why should not a thicker and stouter piece of membrane move a piece of steel."* Thus the telephone was conceived.

Process

- Share with students other similar examples (as mentioned in getting started).
- Encourage students to share their views on the thought that nature is a great scientist and has served as an inspiration to the present day scientists.
- Give each student the worksheet **without** the answer.
- Instruct them to go through and fill up the worksheet.
- Let them discuss the answers and reason out.
- Ask them to make a list of natural wonders that can result in new inventions.

Key Messages

1. We should try to find creative and constructive solutions to problems and issues.
2. To be creative, one needs to be able to think out of the box.





Worksheet

Here is a list of animals and the inventions they exemplify. Match the animal with the invention.

- | | | |
|--------------------|-----|----------------|
| 1. bat | () | parachute |
| 2. armadillo | () | snowshoes |
| 3. chameleon | () | anesthetic |
| 4. fish | () | helicopter |
| 5. flying squirrel | () | suction cup |
| 6. squid | () | hypodermic |
| 7. hummingbird | () | radar |
| 8. scorpion | () | camouflage |
| 9. snake | () | electricity |
| 10. abalone | () | tank |
| 11. caribou | () | jet propulsion |

Answers

- | | | |
|--------------------|------|----------------|
| 1. bat | (5) | parachute |
| 2. armadillo | (11) | snowshoes |
| 3. chameleon | (9) | anesthetic |
| 4. fish | (7) | helicopter |
| 5. flying squirrel | (10) | suction cup |
| 6. squid | (8) | hypodermic |
| 7. hummingbird | (1) | radar |
| 8. scorpion | (3) | camouflage |
| 9. snake | (4) | electricity |
| 10. abalone | (2) | tank |
| 11. caribou | (6) | jet propulsion |

Suggested Further Activity:

Encourage students to answer the following:

1. Has anything around you ever given you an idea to invent/design/create something? If yes, explain.
2. Name one animal or bird that inspires you to invent something of human utility.
3. How has nature helped Newton in his discovery?





Activity 3 : Tell Me

Theme: Creative thinking is a novel way of seeing or doing things. It helps to find solutions to our problems. We need to use our higher order thinking skills to be creative.

Time Required: 1 period

Material Needed: Worksheet

Mode: Groups of four to five students

Life Skills to be enhanced: Creative Thinking and Interpersonal Relationships

Objectives: Students will be able to:

- use higher order thinking skills and inference skills;
- use things in a novel and different way.

Getting Started: A creative warm-up activity.

Process:

- Instruct students to read the statements provided in the worksheet.
- Direct them to find out the word that fills up all the blanks in a sentence. Instruct them that one word which is pronounced and spelt the same fits in all the blanks. Provide them a sample sentence to get the idea.
- Encourage them to use their experience and knowledge to determine an appropriate word that completes the sentence in a coherent manner.
- The team that completes the statements first and correctly wins the honour of being the "*best team for the day*".

Key Messages

1. Higher order thinking skills are required to be creative.
2. Try to think out of the box to be creative.
3. Creative thinking helps to find a solution to a problem.





Worksheet

Example

The bandage was wound around the wound.

- 1 The farm was used to (a)_____ (b)_____.
- 2 The snake (a)_____ its skin while in the (b)_____.
- 3 The dump was so full that it had to (a)_____ more (b)_____.
- 4 We must (a)_____ the (b)_____ furniture.
- 5 We could (a)_____ if he got the (b)_____ out.
- 6 The soldier decided to (a)_____ his dessert in the (b)_____.
- 7 Since there is no time like the (a)_____, he thought it was time to (b)_____ the (c)_____.
- 8 A (a)_____ was painted on the head of the (b)_____ drum.
- 9 When shot at, the (a)_____ (b)_____ into the bushes.
- 10 I did not (a)_____ to the (b)_____.
- 11 The insurance was (a)_____ for the (b)_____.
- 12 There was a (a)_____ among the oarsmen about how to (b)_____.
- 13 They were too (a)_____ to the door to (b)_____ it.
- 14 The buck (a)_____ strange things when the (b)_____ are present.
- 15 A seamstress and a (a)_____ fell down into a (b)_____ line.
- 16 To help with planting, the farmer taught his (a)_____ to (b)_____.
- 17 The (a)_____ was too strong for us to (b)_____ the sail.
- 18 After a (a)_____ of injections my jaw got (b)_____.
- 19 Upon seeing the (a)_____ in the painting I shed a (b)_____.
- 20 I had to (a)_____ the (b)_____ to a series of tests.





Answers

- 1 The farm was used to produce produce.
- 2 The snake shed its skin while in the shed.
- 3 The dump was so full that it had to refuse more refuse.
- 4 We must polish the polish furniture.
- 5 We could lead if he got the lead out.
- 6 The soldier decided to desert his dessert in the desert.
- 7 Since there is no time like the present, he thought it was time to present the present.
- 8 A bass was painted on the head of the bass drum.
- 9 When shot at, the dove dove into the bushes.
- 10 I did not object to the object.
- 11 The insurance was invalid for the invalid.
- 12 There was a row among the oarsmen about how to row.
- 13 They were too close to the door to close it.
- 14 The buck does strange things when the does are present.
- 15 A seamstress and a sewer fell down into a sewer line.
- 16 To help with planting, the farmer taught his sow to sow.
- 17 The wind was too strong for us to wind the sail.
- 18 After a number of injections my jaw got number.
- 19 Upon seeing the tear in the painting I shed a tear.
- 20 I had to subject the subject to a series of tests.

Suggested Further Activity:

Organise a discussion on “How does thinking creatively help us in life?”





Activity 4 : Quote the Quotes

Theme: Great men have said it all! All of us must have heard the saying that there is no need to “*reinvent the wheel*”. There can be some interesting and creative ideas that we can derive from the quotations that we read. Several are available in the form of compilations (as books) as well as online.

Time Required : 1 period

Materials Needed: Quote Solutions Handout, books of quotations, internet access and worksheet

Mode: Groups of four to five students

Life Skills to be enhanced: Creative Thinking and Problem Solving

Objectives: Students will be able to:

- generate creative ideas as possible;
- use quotes to generate ideas.

Getting Started: A creative warm-up activity.

Process :

- Give students a handout of Quotes.
- Instruct students to write down a situation for which they want to find a solution.
- Ask them to find some quotes addressing the key words related to that situation.
- Encourage them to generate creative ideas to resolve the issue.

Key Messages

1. A creative idea can be used to resolve an issue.
2. We derive creative ideas from quotations also.





Quotes Solutions Handout

Situation: How to convince your parents that it is alright to listen to music while studying.

Key Words: 'Music' and 'Studying'

Quotes:

- Without music, life is a journey through a desert. *Pat Conroy*
- Music is a moral law. It gives soul to the universe, wings to the mind, flight to the imagination, and charm and gaiety to life and to everything. *Plato*
- Music is the arithmetic of sounds as optics is the geometry of light. *Claude Debussy*
- Music hath charms to soothe a savage beast, to soften rocks, or to bend a knotted oak. *William Congreve (1670-1729)*
- The schools that produced the highest academic achievement in the United States today are spending 20% to 30% of the day on the arts, with special emphasis on music. *International Association for the Evaluation of Educational Achievement (IAEEA) Test, 1988*
- Students who were exposed to music-based lessons scored a full 100% higher on fractions' tests than those who learned in the conventional manner. *Neurological Research, March 15, 1999*
- High school music students have been shown to hold higher grade point averages (GPA) than non-musicians in the same school. *National Educational Longitudinal Study of 1988*
- During moments of musical euphoria, blood travels through the brain to areas where other stimuli can produce feelings of contentment and joy-and travels away from brain cell areas associated with depression and fear. *Dr. Frederick Tims, reported in AMC Music News, June 2, 1999*
- Students of lower socio-economic status who took music lessons in grades 8-12 increased their Mathematics scores significantly as compared to non-music students. But just as important, reading, history, geography and even social skills soared by 40%. *Gardiner, Fox, Jeffrey and Knowles, Nature, May 23, 1996*
- Music training helps under-achievers. Students lagging behind in scholastic performance caught up to their fellow students in reading and surpassed their classmates in Mathematics by 22% when given music instruction over seven months. *Nature, May 23, 1998*





- If children hear fine music from the day of their birth and learn to play it, they develop sensitivity, discipline and endurance. They get a beautiful heart. *Shinichi Suzuki*
- There is music wherever there is harmony, order, or proportion. *Thomas C. Haliburton*
- If you look deep enough you will see music; the heart of nature being everywhere music. *Thomas Carlyle*

The Best Ones:

Music is the arithmetic of sounds as optics is the geometry of light. *Claude Debussy*

Music training helps under-achievers. Students lagging behind in scholastic performance caught up to their fellow students in reading and surpassed their classmates in Mathematics by 22% when given music instruction over seven months. *Nature, May 23, 1998*

Students who were exposed to music-based lessons scored a full 100% higher on fractions' tests than those who learned in the conventional manner. *Neurological Research, March 15, 1999*

Ideas to put in front of your parents:

- Music helps in scholastic achievements
- Music keeps the mind calm while studying
- Music keeps you awake while studying.





Worksheet

Now write a situation related to you and try to find a way out through Quotes

Situation:

Key Words:

Quotes:

The Best Ones:

Ideas:

Suggested Further Activity:

Instruct students to answer the following:

What is a 'silly' idea? How does it differ from 'normal' idea? Have you tried to solve any difficult problem using 'silly' idea? If yes, describe the problem and how you arrived at the solution using the 'silly' idea.

Web Support:

<http://www.ndacda.com/sitebuildercontent/sitebuilderfiles/musiceducationquotes.pdf>

http://www.thinkexist.com/English/Topic/x/Topic_274_6.htm

<http://www.auuuu.com/quotes/music.html>

<http://www.inspirational-quotes-change-lives.com/famousmusicquotes.html>





Activity 5 : Stick and Cloth

Theme: Creative thinking is a novel way of seeing and doing things. It requires one to think out of the box. This activity encourages the students to use their higher order thinking skills to create as many items as possible out of a stick and a piece of cloth.

Time Required: 1 period

Materials Needed: A stick (one metre) and a piece of cloth (1 X 1 metre)

Mode: Whole class sitting in a circle

Life Skills to be enhanced: Creative Thinking and Problem Solving

Objectives: Students will be able to:

- think and express their ideas cohesively;
- demonstrate creativity;
- stretch their imagination.

Getting Started: A creative warm-up activity.

Process:

- Make all students sit in a big circle.
- When everyone is seated, place both the piece of cloth and the piece of stick in the middle and ask the group what they see.
- Ask them to describe the attributes of the two objects (e.g. the cloth is soft and smooth, the stick is hard, stiff, rough, etc.).
- Encourage them to imagine that the cloth and the stick are not a cloth and stick but something else. Ask 'what could they be?'
- Each student then takes a turn to demonstrate what he/she imagines the cloth and the stick to be e.g. the cloth could be a mirror and the stick a toothbrush.
- Give time to everyone to stretch their imagination.

Key Messages

1. Creative thinking is a novel way of seeing and doing things.
2. To be creative, one needs to use imagination and think out of the box.

Suggested Further Activity:

Encourage students to think creatively and make a useful object out of waste material.





Activity 6 : Shhh... Sherlock Holmes is here

Theme: There are six key questions that journalism students are taught to answer in their news articles to make sure that they have covered the whole story. For creative thinkers, these questions stimulate thinking about the idea in question and allow one to approach it from various angles. So let us try to write down our creative ideas.

Time Required: 1 period

Materials Needed: 'Super Six' handout and newspaper clippings

Mode: Groups of four to five students

Life Skills to be enhanced: Creative Thinking and Problem Solving

Objectives: Students will be able to:

- think and express their ideas cohesively;
- use the six journalistic questions to generate ideas.

Getting Started: A creative warm-up activity.

Process:

- Students bring some clippings of newspaper articles.
- Divide students into groups.
- Instruct students to analyze the given newspaper articles.
- Now ask them to go through the 'Super Six' handout.
- Instruct them now to reanalyze the given newspaper clippings in the light of 'Super Six' handout and record their observations in the worksheet.
- Encourage them to rewrite the report putting in the missing elements if any and share their version with the class.

Key Messages

1. It is important to have all the six elements of "Who, What, When, Where, Why and How" in the news report.
2. These elements can help in generating creative solutions to different situations.





'Super Six' Handout

1. **Who?** (Actor or Agent) Who is involved? Who did it/will do it? Who uses it, wants it? Who will benefit, will be injured, will be included, and will be excluded?
2. **What?** (Act) What should happen? What is it? What was done/ought to be done, and was not done? What will be done if x happens? What went or could go wrong? What resulted in success?
3. **When?** (Time or Timing) When will/did/should this occur or be performed? Can it be hurried or delayed? Is a sooner or later time be preferable? When should be the time be if x happens?
4. **Where?** (Scene or Source) Where did/will/should this occur or be performed? Where else is a possibility? Where else did the same thing happen/should the same thing happen? Are other places affected, endangered/protected/aided by this location? Effect of this location on actors, actions?
5. **Why?** (Purpose) Why was/is this done, avoided, permitted? Why should it be done, avoided, permitted? Why did/should actor do? Different for another actor, act, time, place? Why that particular action, rule, idea, solution, problem, disaster, and not another? Why that actor, time, location, and not another?
6. **How?** (Agency or Method) How was it, could it be, should it be done, prevented, destroyed, made, improved, altered? How can it be described, understood? How did beginning lead to conclusion?

Worksheet

- **Who?** (Actor or Agent)

- **What?** (Act)

- **When?** (Time or Timing)



