



Creative Thinking

Day 1

INTRODUCTION

Greet and introduce self.

INTRODUCE TRAINING DAY TOPIC

Key phrases:

- Everything in life requires imagination.
- The ability to resolve issues and, create or find solutions, requires the ability to think creatively (this does not include telling lies, of course!)
- But before we begin, let's get to know each other better... let's work on something fun together.

Activity 1

Story Of My Life



Getting to know each other

This is an individual activity.
Time: 30 mins

“You have been hired by company ABC to illustrate a poster to help 5 to 6 year old students to learn the alphabet.

By happy coincidence, you and your first name are the subject of the poster.”

1. Take a piece of paper and write your name vertically down the left side.
2. Next choose a word that start with a letter of your name. The word should describe something about you. Write those words horizontally across the paper, using the letters of your name as the first letter for each descriptive word.
3. After you have listed your words, draw a picture to illustrate each descriptive word.
4. When you have finished, present posters among team members.



Example:

A - Analytical 

L - Loving 

I - Intelligent 

WHAT IS TECHNOLOGY?



Technology is something (anything) created by humans to make life easier and solve problems.

Get participants involved by asking what they think technology means:

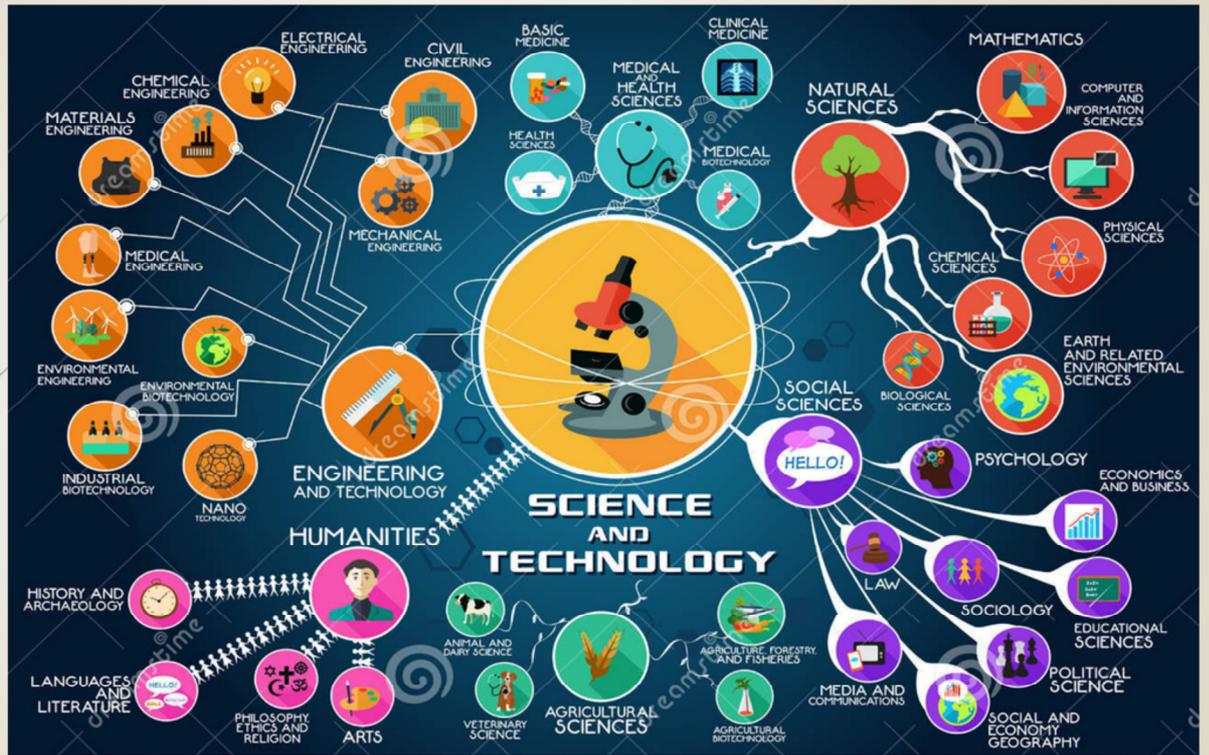
“Can you share your ideas on what you think technology means?”

[Click on this slide to show actual meaning derived by scholars]

Continue explanation with SLIDES 4 & 5.

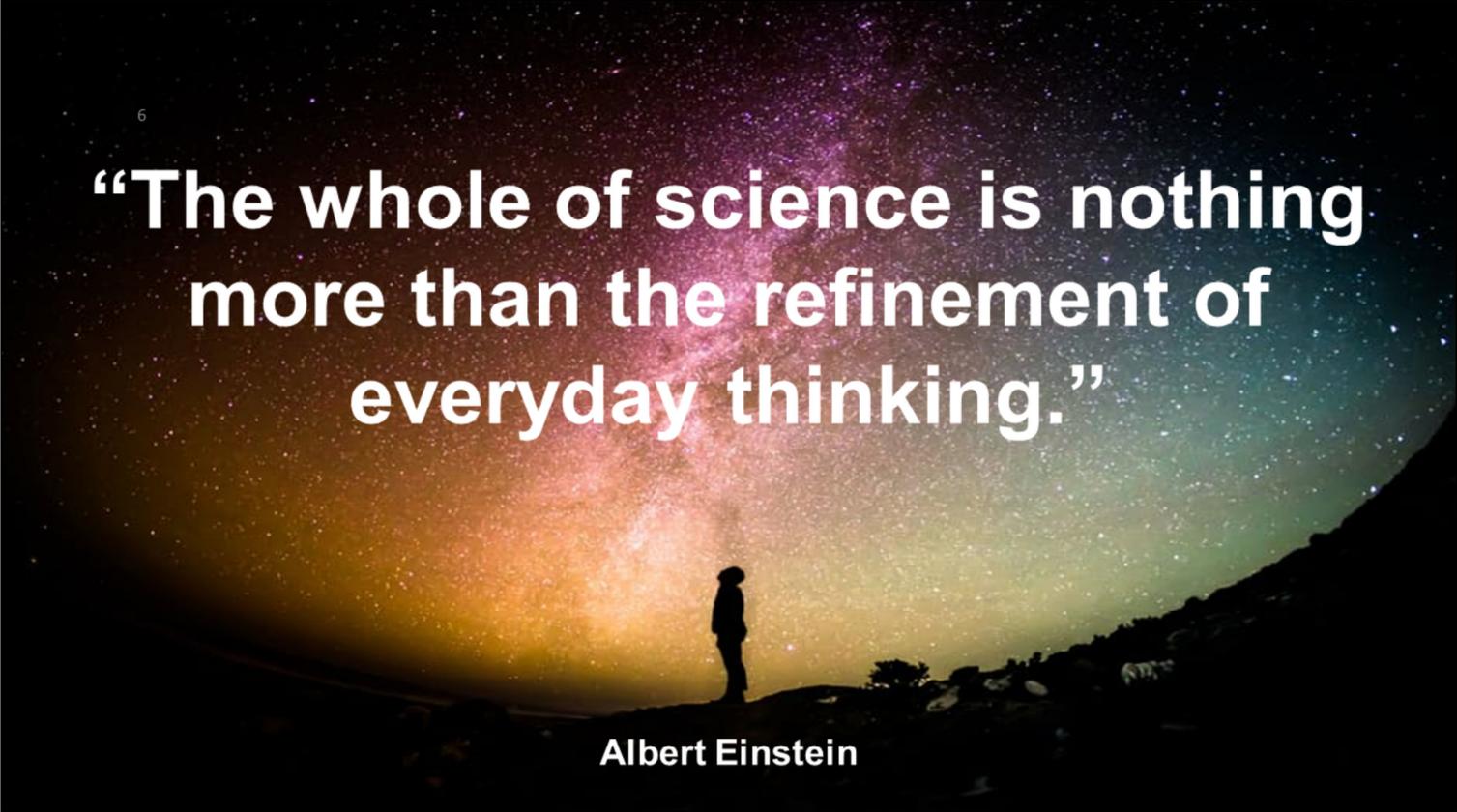
SCIENCE & TECHNOLOGY

cannot be separated



Dreamstime.com

For more info, visit:
<http://www.tiki-toki.com/timeline/entry/633796/Science-and-Technology/>



“The whole of science is nothing more than the refinement of everyday thinking.”

Albert Einstein

Science is a thinking process.

Science requires testing.

Science requires evidence.

Science is solving problems via technology.

Activity 2

Let's explore ways to
refine our everyday thinking:

BE A TECHNO POET

From a small planet,
a polished instrument gazes back in time,
the starry depths
offer up their mysteries.

An exercise to explore ways to refine everyday thinking – BE A TECHNO POET.
Regroup 5 members each – appoint a leader.

[Click through slides 8 to 14 – run through the processes involved where explanation on the premise of the exercise is embedded in the slides]

After 10 minutes, click on to SLIDE 15.



More Example:

Keyboards smash for a night owl like me
Refreshing the page; you won't agree
To open the sites as eyes can't track
web-links; now comes my panic attack.
Deadline begs the hard drive, " oh, please load"
Yet, horrid creatures romp in your abode;
The mouse, bugs, and plants versus zombies!
Hey, Dell; stop ruling technology.
With one naughty virus, you are junk
A darn gadget Windows can debunk.
Now, who leads this port, man or machine
My files are saved, well dear PC, I win!

Carol Eastman's Computer Contest
-Plants versus Zombies is an online game
4/9/2015

THE PROCESSES for SOLVING PROBLEM



Exploring the meaning of REFINEMENT OF EVERYDAY THINKING

We usually think to solve problems.

When you refine the way you think, your ability to see and understand things logically grows.

And this is a MUST in the world of technology – especially in the world of inventions and innovations.

[Click on this slide to show the processes that follow REFINEMENT OF THINKING from the perspective of invention and innovation]

THINK IT

What sets us apart from other creatures?

Is it language?

Is it our tools?

Some people think animals talk to each other too; and some even use simple tools.

But only humans **TALK TO EACH OTHER ABOUT OUR TOOLS.**

We exchange ideas on the use of our tools, and the wonders they reveal through invention & innovation.

Definition (Oxford): Think

1. Have a particular belief or idea.
2. Direct one's mind towards someone or something; use one's mind actively to form connected ideas.

EXPLORE IT

Here is an opportunity to express your true humanity.

This is your chance to write poetry.



Many people think poetry is the highest form of self-expression in language...

Explore what you would like to express about the tools we have today; and write a poem about how it has shaped us and our world.

Definition (Oxford): Explore

1. Travel through (an unfamiliar area) in order to learn about it.
2. Inquire into or discuss (a subject) in detail.
3. Examine by touch.
4. Surgically examine (a wound or part of the body) in detail. (Medical)

**WRITE IT /
SKETCH IT**

Let's start thinking about what to write.

To help you along before you get started...

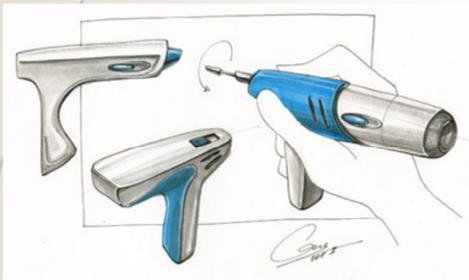
Our tools now extend our senses far beyond what previous generations could have imagined.

We now go places and find out things we would never have known if it weren't for our tools, our technology.

New technologies extend our awareness.

We can detect particles far smaller than our eyes can see and extend our sight to the farthest reaches of the Universe.

It seems nothing is too small or too large to be beyond our reach now.



Definition (Oxford): Write

1. Mark (letters, words, or other symbols) on a surface, typically paper, with a pen, pencil, or similar implement.
2. Compose, write, and send (a letter) to someone.
3. Compose (a text or work) for written or printed reproduction or publication; put into literary form and set down in writing.
4. Enter (data) into a specified storage medium or location in store. (Computing)

Definition (Oxford): Sketch

1. A rough or unfinished drawing or painting, often made to assist in making a more finished picture.
2. A short humorous play or performance, consisting typically of one scene in a revue or comedy programme.

e.g: tools

Phone: allows us to talk to people for away.

e.g: poetry about phone and your mom's voice you can hear when you are away.

Internet: easy to get info

e.g: poetry of google and easy way to find information.

CREATE IT



Let's start writing!

Your poem should capture the feel of one of these five technological advancements:

- 1) **Social Media**
- 2) **Audio Visual**
- 3) **Amusement Parks**
- 4) **Transport**
- 5) **Medicine**

You have 10 minutes.

Definition (Oxford): Create

1. Bring (something) into existence.
2. Make a fuss; complain.



Example:

PSR
Mar 10, 2016

A Slave to Social Media

Head hunched forward,
Brain plugged in,
Cyberspace awaits.
Fingers clicking,
Eyes scanning,
Detached from reality,
My hourly fix.
Oblivious to the world,
Incommunicado
From flesh and bone.

hellopoetry.com/poem/1582972



Time: 1 minute

Depending on time – ask only 1 / 2 groups or all group to present.

[Click on this slide – the remaining processes involved will pop up]

Definition (Oxford): Try

1. Make an attempt or effort to do something.
2. Subject (someone) to trial.
3. Smooth (roughly planed wood) with a plane to give an accurately flat surface.
4. Extract (oil or fat) by heating.

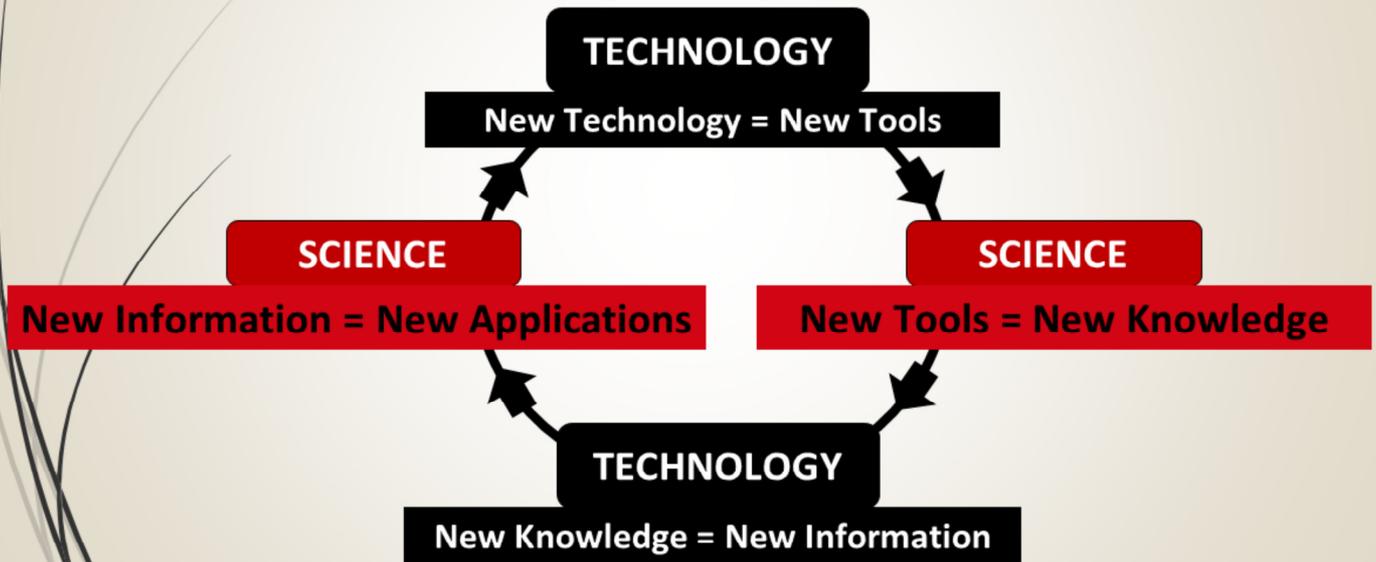
Definition (Oxford): Test

1. A procedure intended to establish the quality, performance, or reliability of something, especially before it is taken into widespread use.

Definition (Oxford): Improve

1. Make or become better.

Relationship between Technology & Science



Understanding the relationship between Technology and Science

“Technology and Science are like an old married couple – why is it that they come hand in hand?”

[Click on this slide which explains the flow of the relationship.]

Continue and click through SLIDE 17 for the definition of the relationship.
Click though SLIDE 18 which illustrates the application.

People often use the words
Science and Technology
interchangeably...



SCIENCE

**is the pursuit of knowledge
for its own sake.**

TECHNOLOGY

**is to create products that solve
problems and improve human
lives.**

Basically... technology is the **practical
application** of science.

Definition (Oxford): Technology

1. The application of scientific knowledge for practical purposes, especially in industry.

Definition (Oxford): Science

1. The intellectual and practical activity encompassing the systematic study of the structure and behaviour of the physical and natural world through observation and experiment.

EXAMPLE OF THE APPLICATION



SCIENTISTS
discover the way
the human heart
works



TECHNOLOGISTS
use the information
discovered to make
artificial hearts

Links:

1. Artificial hearts

<https://www.youtube.com/watch?v=FtBHVj3Tsn8>

2. First artificial heart implant offers new hope to patients with heart diseases

https://www.youtube.com/watch?v=GyVmV_u95zl

Activity 3

Teamwork

The success of any scientific knowledge to be turned into practical application in developing new technology requires **Teamwork**



“The success of any scientific knowledge, to be turned into practical application in developing new technologies requires... TEAMWORK – between scientists, and technologists.”

OBJECTIVES

To help participants to generate as many creative ideas as possible.
To help participants learn how to use the activities to generate ideas.

Group Size

5-7 participants each group

Time

15 minutes

Topic: Bend It, Shape It Handout

Your challenge is to think of ways to improve an office stapler. Here are some samples using Osborn's Checklist.

Adapt:

Design a stapler that fastens without staples by pressing together sheets of paper under pressure (for example, a pair of pliers is somewhat like a stapler in that it can be used to press together things).

Modify:

Use bright, metallic paint.

Magnify:

Enlarge the stapler's top and make it ergonomic to fit a hand.

Minify:

Design a stapler that dispenses both small and large staples.

Substitute:

Make a line of staplers from different materials such as cardboard, metal, fiberglass, plastic, or polished wood.

Rearrange:

Design a stapler that can staple from either end.

Reverse:

Design a stapler that works by pulling up on a handle instead of pressing down.

Combine:

Design a combination stapler and magnetic paper clip dispenser.



Get participants involved and discuss:

“So, who exactly are scientists and technologists? Can you name some people or the kind of jobs they have that make them scientists and technologists?”

[Click on this slide to illustrate the difference between scientists and technologists.]

“What happens when you put together scientists and technologists?”

Click through to SLIDE 21.

“That is how inventions and innovations happen!”

Let's look at the INVENTION & INNOVATION of the telephone...

INVENTION



First telephone
(1876)



The old phone



The landline phone –
from dialing system to press button



First mobile phone
(1983)



The iPhone

INNOVATION

The inventor: Alexander Graham Bell
The innovator: Steve Jobs

“Let's have a look at the invention and innovation of the telephone.”

[Click on this slide to run through the examples and illustrate the difference between INVENTOR and INNOVATOR.]



**HERE ARE SOME
OF THE WORLD'S
YOUNGEST
INVENTORS & INNOVATORS
EVER!**

“Now, let’s have a look at of the world’s youngest inventors and innovators...”

Continue and click to SLIDE 23 and play the video.



How to make a Powered car

<https://www.youtube.com/watch?v=voT-xADi-RE>

Activity 4

Count the tigers

Count the number of tigers in the coming picture... including the ones that are “hidden”



(5 MINS)

An exercise to look & see things with your creative mind.

Individual exercise – hand out print out of “count the number of tigers in the coming picture...”

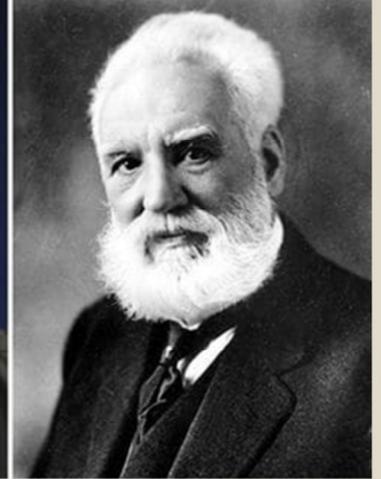
Continue and click to SLIDE 25 to discuss and show the hidden tigers.



HOW TO BE AN **INVENTOR** and/or **INNOVATOR?**



INNOVATOR



INVENTOR

Click through this slide and into SLIDE 28.

After completing Slide 28, points to raise and discuss:

- What makes for imagination? *Discuss*
- What makes for creativity? *Discuss*
- What makes for acquiring knowledge? *Discuss*
- What makes for good analytical skills? *Discuss*



Definition (Oxford): Imagination

1. The faculty or action of forming new ideas, or images or concepts of external objects not present to the senses.

Definition (Oxford): Creativity

1. The use of imagination or original ideas to create something; inventiveness.

Definition (Oxford): Knowledge

1. Facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject.
2. Awareness or familiarity gained by experience of a fact or situation.

Definition (Oxford): Analytics

1. The systematic computational analysis of data or statistics.

Activity 5

THE HIDDEN TIGER

Your mission:

**LOOK FOR
“THE HIDDEN
TIGER”
(5 MINS)**



An exercise to test your imagination.

Hand out print out of “Look for the Hidden Tiger” to all participants.

Click through to SLIDE 30 to begin the exercise.

After 2 minutes, click to SLIDE 31 to show where “the hidden tiger” really is...



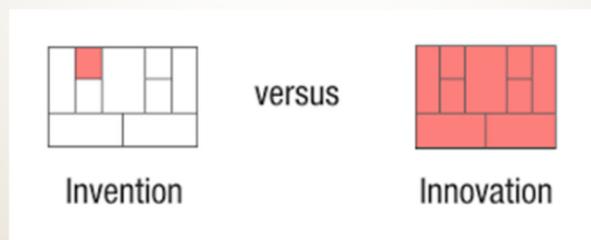


This shows that you should not always look for the obvious, sometimes the answer is “outside our box of thinking”.

ABILITY?

What ability do you need to have to excel in all the areas we spoke about – to be a

GREAT INVENTOR and/or INNOVATOR



Discuss in group:

Addressing what's required to be a great inventor and/or innovator.

Click through to SLIDE 33 to reveal that it's all about effective communication.

COMMUNICATION...



EFFECTIVE COMMUNICATION!

Narration for this slide:

Problems are often obscured by an overload of information.

Clarify and isolate the challenge you face by spending time understanding and defining the problem.

Can you simplify it down to ten words, five words or even just three? Ask yourself...

What is the one thing I am being asked to do?

Doing this can make the quest to find a solution personal and exciting for you.

Reduce and clarify, and boil down the ingredients in the conversation to gain intensity and get to the essence of the challenge.

And here is the challenge... Click through to SLIDE 35 and begin the exercise.

LET'S DO FUN THINGS TO
WORK ON OUR CREATIVE
COMMUNICATION SKILLS!



WHAT IS IN A QUESTION?



Develop questioning skills by holding a conversation entirely in questions. By asking questions, you will learn more. This is an exercise for you to hone your ability to ask questions clearly.

This activity is done in pair.

You need to answer every question with a question.

A: Ask a question

B: Answer with a question

A: Reply the answer of the question with another question.

Time: 10 minutes

Activity 6

THE LOGO GAME

Apple Logo



Nike Logo

Our imaginations are what provide us with the amazing ability to rearrange thoughts, knowledge, dreams, desires and memories into new images and forms – some impossible in the real world. It is in our imaginations that we conjure up the ideas that can solve problems in exciting ways.

Here's what you need to do...

Break participants into pairs.

Time: 30 minutes

Working in pairs, with single sheets of paper for the duo, and coloured marker pens, each player draws the outlines of a familiar logo – for example like in the pictures: the Nike tick and Apple's bitten apple.

Exchange drawings. Rotate the drawing you have been presented with. Turn it sideways and upside down. Look from every angle until you spot a potential way of transforming it into something completely different.

Play with the shape in your mind. Working quickly, complete the drawing. Now repeat with different logos.

The best idea wins (A good idea may provoke smiles or laughter – physical reactions that prove the idea has worth.)

Usually the best answer is to:



kiss

keep it simple & short

Writer Ernest Hemingway famously laid down a challenge to write a story in six words. Let us try it out.

Break participants into pairs.

Time: 20 minutes

[Click through to SLIDE 38 to show the sentence they need to use for this exercise.]

Activity 7

Shorten this sentence to 6 words!

A scientist on a deserted island
conducts experiments to try to
increase the intelligence of a rat.

“Scientist experiments to increase rat’s intelligence.”

After 20 minutes, get the pairs to read out their work.

And then click on the same slide to reveal shortening of the sentence:
“Scientist experiments to increase rat’s intelligence.”

Activity 8:

PLASTIC CUP MUSIC



Optional activity

Break into groups of five.
Time: 1 hour

Create music using the plastic drinking cups and scissors we are handing out now.

Play around with the cups to discover as many different types of sound you can make by cutting and snipping at it.

Get teams to present at the end of it. Judge for the winning team and they get a hamper!

THANK
YOU