

ANNEDROIDS

EPISODE 108

PAL IN THE MIDDLE

Watch as I retrieve a prism from Shania's house so that Anne and Nick can create a rainbow!

EXPERIMENT SUMMARY

EXPERIMENT: Create a rainbow maker!

HYPOTHESIS: The light from Hand's spotlight will travel into the prism, separate into different colours, bounce off the mirror into the sky, project onto the mist from the garden hose, and then a rainbow will appear!

METHOD: Collect a prism, a big and bright light source, a mirror, and a garden hose.

RESULT: The light travelled into the prism, bounced off the mirror, projected onto the mist and created a beautiful rainbow!

CONCLUSION: Rainbows can be created by refracting and reflecting light!

EXTENSION ACTIVITY

Create your very own rainbow!

You will need:

1. A grownup to help you.
2. Sunlight (or a flashlight).
3. A piece of white paper.
4. A clear glass filled with water (almost to the top).

Once you have gathered all your materials, you are ready to create your rainbow!

Follow these steps:

1. Find a bright, sunny spot in your house (next to a window is perfect).
2. Place the piece of white paper on a table or counter so it is in the sunlight. Then place the glass filled with water on top of the paper.
3. A rainbow should appear on the piece of paper!
4. If you don't see a rainbow, pick up the glass and lift it straight up away from the paper. Now check to see if you created a rainbow.

*If you are using a flashlight, follow the same steps but just shine the flashlight on the glass of water (in a darker room) and move it around until a rainbow appears on the piece of paper.

WHAT'S HAPPENING?

When the sunlight or light from the flashlight moves into the water and the glass, it bends in a special way—this is called refraction! When it bends, the light separates into all the colours of the rainbow.

SYNOPSIS FOR TEACHERS/PARENTS:

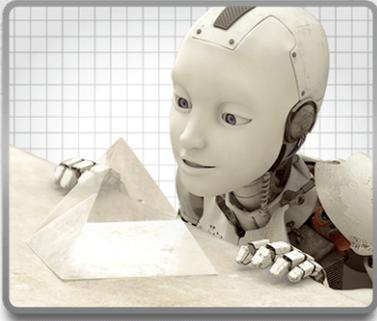
In this episode Anne and Nick gather materials to build a rainbow maker. They collect a prism, light source, mirror, and garden hose (with holes) to refract and reflect light. This episode teaches children about the different properties of light and how light can refract through a prism and reflect off mirrors and water.

CURRICULUM EXPECTATIONS:

GRADE 4 SCIENCE: UNDERSTANDING MATTER AND ENERGY – LIGHT AND SOUND

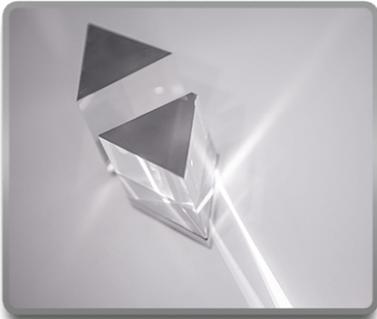
- 2.1 Follow established safety procedures for protecting eyes and ears.
- 2.2 Investigate the basic properties of light.
- 2.4 Use technological problem-solving skills to design, build, and test a device that makes use of the properties of light or sound.
- 3.1 Identify a variety of natural light sources and artificial light sources.
- 3.2 Distinguish between objects that emit their own light and those that reflect light from other sources.
- 3.3 Describe properties of light, including the following: light travels in a straight path; light can be absorbed, reflected and refracted.
- 3.4 Describe how different objects and materials interact with light and sound energy (e.g., prisms separate light into colours).

MULTIPLE CHOICE



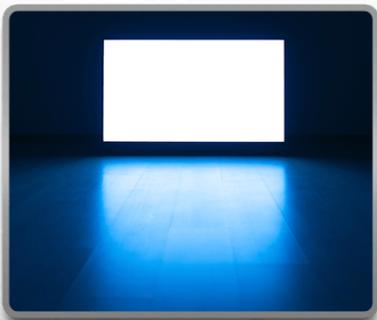
QUESTION #1: WHAT IS A PRISM?

- A. A clear three-dimensional shape that can bend light.
 - B. A special sparkle treasure.
 - C. A two-dimensional shape that can bend light.
 - D. A complete path around which electricity can flow.
-



QUESTION #2: WHAT IS REFRACTION?

- A. The process of taking one number away from another.
 - B. The process of taking something apart.
 - C. The bending of light rays as they pass from one substance to another at an angle.
 - D. The process of soaking something up.
-

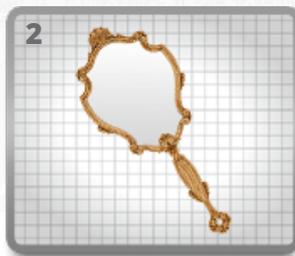


QUESTION #3: WHAT IS REFLECTION?

- A. The bending of light.
 - B. To look at yourself in the mirror.
 - C. To transfer one thing to another thing.
 - D. The bouncing of light rays off a surface.
-

SORTING GAME

Sorting time! Sort these items by drawing a line from the object to the right category.



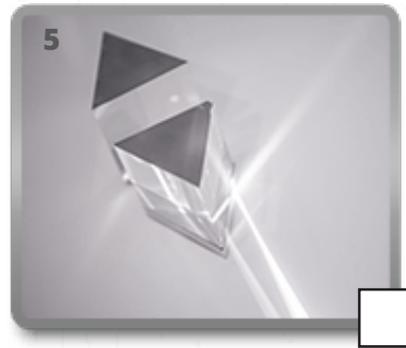
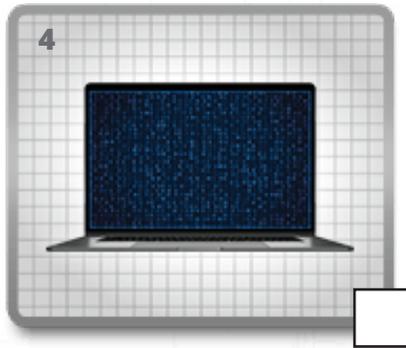
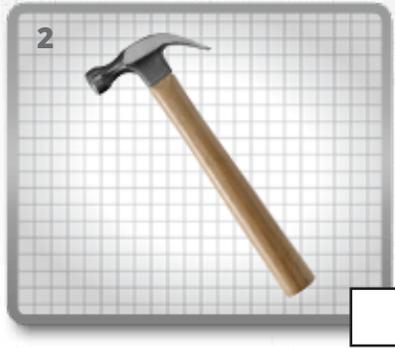
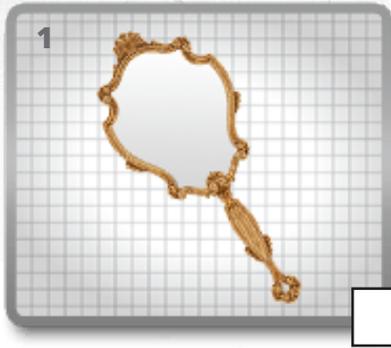
LIGHT SOURCE

REFLECTIVE SURFACE

1. Flashlight (Light Source). 2. Mirror (Reflective). 3. Fire (Light Source). 4. Sun (Light Source). 5. Water (Reflective). 6. Disco Ball (Reflective).

CATEGORY SELECTION

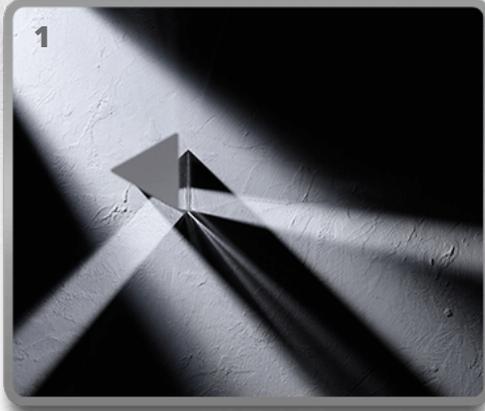
Select all the items that Anne needed to create a rainbow.



1. Mirror (correct). 2. Hammer (correct). 3. Garden hose (correct). 4. Computer (incorrect). 5. Prism (correct).

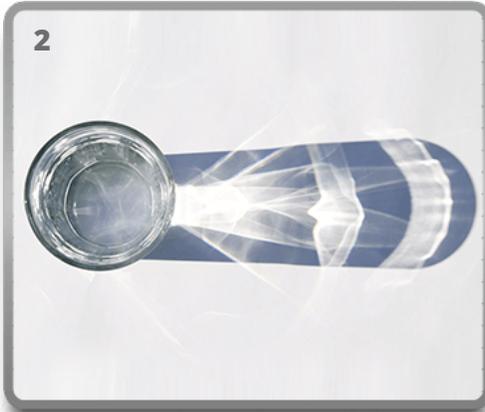
WORD JUMBLE

Unscramble the letters to find the missing word!



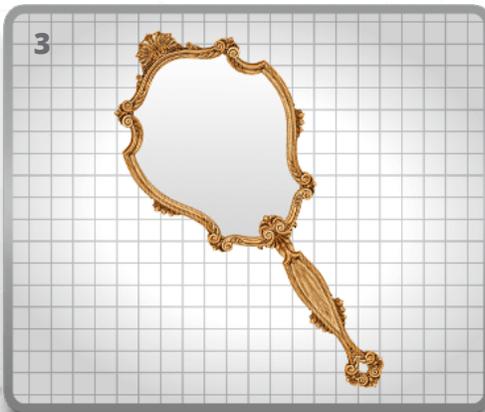
_____, light is made
up of all different colours.

TEWIIH



In order for light to refract from a prism or
reflect off a mirror, it must be placed at a certain

ALGEN



Mirrors can _____ light.

TREFLCE

1. WHITE. Fact: White light is made up of different colours, but we cannot see them because they are mixed together.
2. ANGLE. Fact: Placing a light source at a certain angle is important for light to refract or reflect! 3. REFLECT. Fact: Light can
bounce off mirrors to create a reflection!

PUZZLE

Cut along the solid white lines to make a puzzle.

