

**High Energy Groove  
X-RAY EYES**



**Level:** Middle School

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**National Science Education Standards:**

(<http://www.nap.edu/readingroom/books/nses/html/index.html>)

Physical Science: Transfer of Energy

-Light interacts with matter by transmission (including refraction), absorption, or scattering (including reflection). To see an object, light from that object--emitted by or scattered from it--must enter the eye.

*Science in Personal and Social Perspectives: Science and Technology in Society*

- Technology influences society through its products and processes. Technology influences the quality of life and the ways people act and interact. Technological changes are often accompanied by social, political, and economic changes that can be beneficial or detrimental to individuals and to society. Social needs, attitudes, and values influence the direction of technological development.

**Enduring Understanding:** Our eyes act as a medium allowing us to see visible light. Technology can help us to view the universe through different parts of the electromagnetic spectrum.

**Essential question:** Our eyes allow us to see visible light. What would we see if we had x-ray eyes?

**Objective:** Students will create a collage to show the universe in a different light.

**Materials:**

Glue  
Construction paper  
Magazines (various types including some astronomy magazines)

Markers  
Scissors

**Warm-up:** Have students to complete the following statement. If I had \_\_\_? \_\_\_ eyes, I could see \_\_\_? \_\_\_. Allow time for students to share their responses.

**Procedure:**

1. Create a class list of things humans can see with their natural eyes on earth and in space.

<b>Our Eyes On Earth</b>	<b>Our Eyes In Space</b>
1.	1.
2.	2.
3.	3.

2. Create a class list of things humans could see with x-ray eyes on earth and in space.

<b>Our X-Ray Eyes On Earth</b>	<b>Our X-Ray Eyes In Space</b>
1.	1.
2.	2.
3.	3.

3. Give each student 2 pieces of construction paper. They should label one **MY EYES** and the other one **MY X-RAY EYES**.
4. Students will then use the magazine pictures to create collages of things they could see with their eyes and their x-ray eyes.
5. On the back of their collage students may write a paragraph describing the benefits and limitations of using their eyes and their x-ray eyes.

\*\*\*If you are short on magazines and have use to a computer lab, students could create virtual collage from computer images.

**Extension:** Attempt to view the universe through different parts of the electromagnetic spectrum.

**Assessment:** Have students to give a short presentation of their collage describing what they “see” with their eyes and their x-ray eyes. Students may also describe the benefits and limitations of using one way of viewing the universe.

**Image Resources:**

<http://imagine.gsfc.nasa.gov/>

<http://starchild.gsfc.nasa.gov/docs/StarChild/StarChild.html>

[http://heasarc.gsfc.nasa.gov/docs/objects/heapow/archive/heapow\\_archive.html](http://heasarc.gsfc.nasa.gov/docs/objects/heapow/archive/heapow_archive.html)

<http://chandra.harvard.edu/photo/category.html>

<http://space.com/>

<http://thursdaysclassroom.com/>

<http://antwrp.gsfc.nasa.gov/apod/archivepix.html>