Nature-Watch Activity Kit

Monocular

Monocular Kit Contents

	Kit Size		
	1	***25***	***100***
Item:	Quantities:		
Monocular Tubes	1	25	100
Ocular Lenses	1	25	100
Objective Lenses	1	25	100
Red Foam End Caps	1	25	100
Glue	0	1	2
Instructor Manual	1	1	1

This page includes the Next Generation Science Standards (NGSS) mapping for this kit and a Science, Technology, Engineering, and Math (STEM) chart (on back) to use in adapting and extending this activity to other subject areas. The NGSS mapping and STEM chart are brought to you by Resource Area For Teaching (RAFT) in partnership with Nature-Watch.

Nature-Watch and Resource Area For Teaching (RAFT) are both dedicated to providing the best in hands-on experiential teaching resources for educators and their students.

For more information visit:
www.nature-watch.com *and*
www.raft.net

Next Generation Science Standards Alignment

1-PS4-3:
Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.

4-PS4-1:
Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.

4-PS4-2:
Develop a model to describe that light reflected from objects and entering the eye allows objects to be seen.

MS-PS4-2:
Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.

See Back for STEM Chart

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Monocular

Science

- **Use the model to describe the observed image in terms of waves**
- **Explain the attributes of objects seen by the eye through the device in terms of refraction and reflection of light rays**

Technology

- **Create a presentation on different monocular designs and their strengths, limitations, and common uses for each type**
- **Create a video sales pitch and upload to Google Drive for others to view**

Engineering

- **Construct a mount for the monocular to be placed on a digital camera so that images can be photographed**
- **Design and build a monocular with higher magnification lenses and other materials**

Math

- **Measure the sizes of the images of various objects seen through the monocular and compare them to the distance between the monocular and the objects, noting possible patterns or relationships**
- **Draw a conceptual model depicting light rays and angles as light passes through the monocular**

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