

## Cool Science

S N Q H H G L A S S E P D F K  
M C P P J M M C U C R I E L W  
L R I U A I E W A E S D K W I  
J I I T R T W P P K B O E Y I  
P A G R P X S O F S G G P H H  
C Y O H K O C D C V H A O N W  
A R R G T S R D S P M L C Y C  
E W V E E B U E M A K I S A L  
X O N L X W U J B P J L O D E  
U J E L L T H L M I V E R N N  
K T W O D N I W B S F O C U S  
P E R I S C O P E B I Z I O V  
F C Q U T R W T I Z Y R M S O  
U X M I Q E F Q O F B N P Z W  
L K F R Z L N B E V O H O W G

DISK	FIBEROPTICS
FOCUS	GALILEO
GLASS	LENS
LIGHTBULB	MICROSCOPE
MIRROR	PERISCOPE
PRISM	PYREX
SOUND	SPACE
TELESCOPE	WINDOW

Now, go to your local planetarium or observatory for a show. There you will learn about constellations and how to observe the path of the stars.

Corning Community College Planetarium  
1 Academic Drive  
Corning, NY 14830

Contact the Planetarium Box Office and Information Desk at (607) 962-9234, 7:30 a.m.–3:30 p.m., Monday – Friday.

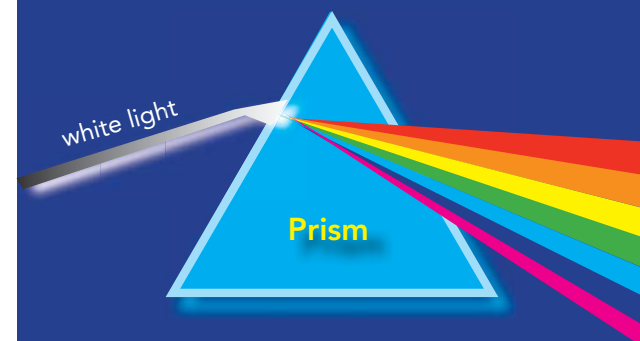
	Requirements Completed	Complete on your own
Junior Girl Scouts Sky Search Badge	#2 – 4, #6 and possibly #5 or #7	#8, #9, or #10
Brownie Girl Scouts Space Explorer Try It!	#1 and possibly #2	#3 – 5

Please let us know if you found this guide to be helpful. Send your comments to:

Family Education Programs  
Corning Museum of Glass  
One Museum Way  
Corning, NY 14830

Or e-mail comments to [scouts@cmog.org](mailto:scouts@cmog.org). You may also leave them at the Admissions Desk.

# Light and Sound Travelers



A self-guided brochure for Scout troops, dens, or families.

Concepts explored in this visit will assist scouts studying lenses, scopes, space, and how the world works.

Designed for ages 7–14

# Learn How Light Travels

Begin your tour in the Innovations Center's Optics Gallery. Start at the Glass Lenses display. Use the space provided to answer the questions.

Look at the reproduction of Galileo's first telescope (refracting telescope). What looks different from the telescopes of today?

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Another device that uses glass lenses to magnify and bend, or refract, light is to the right of Galileo's telescope. Can you tell what it is? How do you think it works?

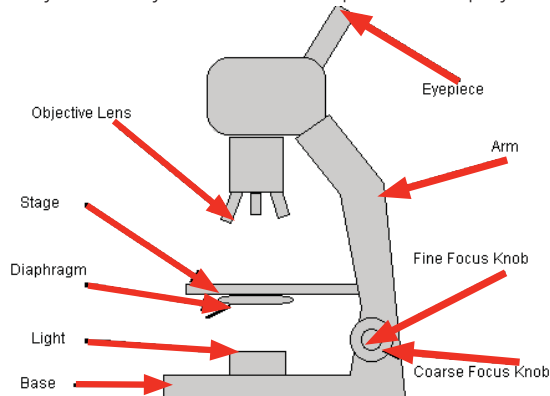
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Compare it to the modern microscope below. What parts can you identify on the microscope in the display?



Look at the convex lens to the right of the scopes. Can you find the focal point of the refracted light?

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In front of the statue of the two men, find the two magnifier lenses. Hold the small one in front of the big one and look through.

Describe what is happening to the light. What do you see?

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Now try it the other way. What changed?

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The large cheese-like circle behind the men is actually a large mirror for a telescope. Near the turn of the century, scientists discovered that they could collect light using mirrors (reflecting telescopes) much easier than with glass lenses (refracting telescopes). This large mirror blank (not ground down into a bowl-like concave shape yet) was the largest of its kind in the 1930's and was made here in Corning, NY. Watch the video about the making and delivering of the successful mirror.

How big is our mirror blank in inches?

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How did the successful mirror get to California?

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Look through the two telescopes under the video screen. What parts of the reflecting telescope can you identify? Are both telescopes the same? Why or why not?

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There are two other mirror blanks in this exhibit area. Can you find them? (Hint: One is the Subaru, and one is the Hubble) Which one do you think allows you to see farther into space? Check your answer by using the touch screen computers near-by. Try looking at Saturn. How does the view change when you look at a picture through the naked eye, through the Subaru telescope, and through the Hubble?

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# Learn How Sound Travels

How does a whisper gallery work? Find the "egg," suspended in the Vessels Gallery area of the Innovations Center. Go inside the egg and experiment with how sound travels from end to end. What happens?

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Now that you understand how light and sound travel, discuss the similarities.