



Hand with a Reflecting Sphere
Lithograph by M.C. Escher

You can view it at: http://en.wikipedia.org/wiki/File:Hand_with_Reflecting_Sphere.jpg

You take a deep breath and open your eyes. The walls of this new place seem to stretch up forever, disappearing into a white canopy and the variegated colors cover the ground beneath you—brown, black, beige—stretching out in an endless sea beyond what you can see.

Where to go? Where to begin? Off to the east, you spot a tall cliff of some sort, a sheer rock face the color of mahogany. It's time to set off and explore. How you will ever summit the cliff, you do not know, but every journey must begin somewhere. Taking one more deep breath, you begin.

Where are you in the story above? Who are you? Are you a mountain climber at the base of a mighty, unexplored mountain? Are you an explorer in a distant land, or are you an ant on the carpet of someone's living room, the variegated ground as the carpet and the mahogany rock face a piece of furniture?

It all depends on your perspective. Perspective was something that artist M.C. Escher loved to experiment with and to make people really think about. With these lessons, we'll learn a little about how he did that.

Mirror Moment

M. C. Escher's *Hand with a Reflecting Sphere* shows us many details at once, as if he held up a mirror, and we are the ones looking at his study from his perspective. Look at the hand holding up Escher's sphere again. Did you notice all of the amazing details the first time you saw the lithograph? Do any questions pop into your mind when you study the hand?

One of Escher's goals for his art was to inspire others to think about how art changed the way they saw themselves and the world. He drew several self-portraits throughout his artistic career, but his sphere is the most well-known. Let's take a few minutes and think this through.

1. Find the largest mirror in your house.
2. Choose your favorite objects and arrange them in front of the mirror.

3. Sit down in a chair in front of the mirror and have someone stand behind you and take a picture.
4. Look at your picture after you are finished. Do you notice how the perspective is different than if you had taken the picture? Do the things around you look different or the same?

5. What does *perspective* mean?

6. The Bible tells us how we should think about everything in our lives. How can Philippians 4:8 apply to art?

SAMPLE

Day Two

How Do You See Yourself?

Think of someone you love very much. Maybe you think of your mom or dad. Maybe you think about a brother or sister or maybe a grandparent. Now imagine someone walking up to them every single day and saying terrible things about them. How would that make you feel?

It would make me mad. It would also make me sad. Those people don't have any right to say bad things about someone God loves. And neither do you.

Maybe you haven't said ugly things out loud to anyone, but have you ever thought ugly things about yourself? Maybe you look in the mirror and tell yourself no one could ever think you look good. Maybe you miss some questions on a test, or you miss the ball at practice, and you tell yourself you must be the dumbest person on the planet.

Imagine God standing beside you when you say those things, even if only in your mind. He can hear you, you know, even when you don't say things out loud. He hears you hurting someone He loves very much—you.

Every time one of those thoughts about yourself comes to mind that you know would hurt God for you to say (or think) about yourself, try replacing it with something true that God has said about you. It helps if you memorize some of them ahead of time. It will make it easier to think of when you need to remember what God thinks of you.

Here are a couple of verses to get you started. See what they have to say about the special and wonderful person God created when He made you. See how many more verses you can find to add to the list.

- Isaiah 43:1-4
- Colossians 1:21-23

Day Three

Mirror, Mirror: Lab Report

What a cool picture we've been studying in this unit. You can see it again here:
www.wikipedia.org/wiki/File:Hand_with_Reflecting_Sphere.jpg

Have you ever seen your reflection in a sphere? In what kinds of objects have you noticed your reflection?

Today's assignment is to compare your reflection in different types of objects. How is your reflection in the computer screen different from that in the mirror? Can you see your reflection in any kitchen appliances or tools? In what other objects, inside your home or out, can you see your reflection?

See if you can find your reflection in five different items. Make a chart where you can list the item and compare the image you see. You might have columns in your chart for comparisons like how clear the reflection is, whether it is distorted, and how much detail is visible in the reflection. What other comparisons could you make?

When your chart is complete and filled in, look over your data and see what conclusions you can draw. What kinds of materials seem to give the clearest reflections? Write a paragraph or two summarizing what you did, what you found, and the conclusions you made.

SAMPLE

Day Four

Lithography: An American Story

“This is wonderful, Mr. Pendleton! What you have here will change the newspaper business forever!”

Nathaniel Currier bent down over the printing press to get a closer look. He had only been an apprentice for a few weeks, but that day he could feel the excitement tingling through the entire shop.

William Pendleton smiled while wiping his ink-stained hands with a clean cloth. “You may be right, my lad. Now people will have pictures to go along with their paper!” He chuckled as he rolled down the sleeves of linen shirt. “Now, what do we call this process, young man?”

“Lithography, sir,” Nathaniel replied, feeling the word roll smoothly off his tongue. In all of his fifteen years, he had never known a word with so much power and beauty. Lithography . . . the word of the future.

Though the story above is fictional, it gives us a little peak into the America of the early 1800s when the first pioneers were heading West and towns grew into cities overnight. This was an exciting time in the nation’s history. Newspaper shops tried to keep up with the demand for more news and details about what was happening around the country.

When Bavarian (German) immigrants arrived in New York City around 1820, they brought soft stones with them—stones so soft that one could draw a picture on them. Soon, newspapers began buying the soft stones from the Bavarian artists, and they taught the printing apprentices how to cut and draw on the stones. The new art form was called *lithography*, and the process took a lot of time and skill. First, the stone had to be cut to the right length for the picture. Then someone poured a thin layer of sand over the stone and rubbed it over the surface. After the stone was velvety-soft, it was ready for the design.

A special crayon was used to draw the picture, and it took a long time to finish. No mistake could be erased, or else you would have to start all over again. Once the artwork was drawn, the stone was dipped into acid and washed clean. Now ink could be rolled over the design and pressed onto paper.

Young Nathaniel Currier became a famous artist when he grew up, and he started his own lithography company. He had a good assistant and friend named James Ives, and so the company was called Currier and Ives. Lithography went on to be very popular and useful as time marched on, combining the two worlds of art and information.

1. Look up *Maple Sugaring* by Currier and Ives online. Write down what you think about the bright colors and what the group is doing.
2. Do you know how maple sugar is made? Find out how this delicious treat is made.
3. Why do you think people wanted pictures along with what they read in the news?
4. Escher's *Hand with a Reflecting Sphere* is a lithography piece. Does that change how you think about the picture?
5. Where is Bavaria?

Day Five
Grades K-2

Shadows

Our work of art for this unit is a drawing of a reflection. Do you remember what the man in the drawing was holding and seeing his reflection in? What else was reflected in the sphere? We know that a reflection looks like the real thing, but it isn't the real thing. What else can you think of that looks real, but isn't?

Shadows are kind of like reflections. Think of some ways that shadows and reflections are similar. See if you and your family can think of five similarities to write down in a list.

Now, think of ways that shadows and reflections are different from each other. Try to list five ways they are different.

Thinking about the ways two things are the same, and then about the ways they are different, is very good exercise for your brain. Now that you've warmed up your brain, let's do some more thinking. Let's think about shadows. A shadow can't exist on its own. To make a shadow, you need an object and a surface for the shadow to fall on. The ground or a wall are good surfaces for a shadow to fall on. Name one other thing you need besides an object and a surface in order to have a shadow.

It's fun to play with shadows. You could use a flashlight or a lamp as your source of light. Choose a toy or book to use as your object and shine the light on the object to make a shadow. You can see that the object blocks some of the light and makes a shadow. What happens to the shadow if you move your object closer or farther away from the light?

Experiment to find out how you can make the smallest shadow with that object. Use a ruler to measure the length of the smallest shadow. Now see how big you can make the shadow with that same object. Can you measure the biggest shadow with a ruler, or do you need to use something else?

What happens to the shadow when you hold your light above the object? Is the shadow short?

See what happens when you hold the light low, aiming it at the side of the object. The length of the shadow changes depending on the position of the light.

Have you noticed that your shadow looks different outside, depending on what time of day it is? Think about how you made shadows shorter and longer inside, and then think about why your shadow can look different outside. Write a paragraph about shadows or draw a picture showing a light source, an object, and a shadow. If you are keeping an Everyday Easels notebook, it would be great to include this. You can do some very creative things with shadows.

Day Five
Grades 3-6

Writing Sdrawkcab

Aren't reflections interesting? Look at Mr. Escher's lithograph one more time [here](#).

Reflections can help us see how things look, but they're not exactly the same as the real thing. Think of a couple of ways that reflections aren't exactly the same as the real person or object being reflected.

How would you describe what a reflection is to someone who didn't know? Imagine that you can't show the person a reflection, but you need to help them understand what a reflection is. What would you say?

Have you ever tried to read something by looking at its reflection in a mirror? Try that now with a book you have. Pick something you haven't read, hold it up to a mirror, and see if you can read the words. What do you notice?

Leonardo Da Vinci is remembered as one of the greatest artists, scientists, and thinkers of all time. Da Vinci kept detailed notebooks as he worked filled with thoughts, ideas, sketches, and lists. People have been fascinated by Da Vinci's ideas for centuries. One of the interesting things about his notebooks is that he often wrote backward. Experts say Da Vinci might have written backward to keep his ideas secret, but we're really not sure why he did it.

Try writing backward yourself. You might start with your name or a simple phrase. What makes writing backward hard to do? What would make it easier? After you've practiced a bit, show your backward writing to someone else. Can they read what you wrote?

Day Five
Grades 7-12

Reflecting God

God gives us a glimpse of His plan for man in Genesis 1:26-28. What do these verses say we were created to be like and to do? After mulling this over, sketch an image of what others should see when looking at us if we are reflecting God.

SAMPLE