

Activities To Go

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In every issue of The Science Reflector look for this new section including activities you can use in your classroom tomorrow. If you have activities you would like to share [please email the editor](#).

Red Eye - Students love to have their picture taken. Use student photos to investigate causes of "red eye" in photographs.

Mars Dance - A kinesthetic exploration of the orbit of Mars.

Red Eye

From [Yikes! Wow! Yuck! Fun Experiments for Your First Science Fair](#) by Beth Snoke Harris

Question

Does eye color affect red eye in a photograph?

What You Need

Camera with flash
Film (if the camera is not digital)
Masking tape
Room with an overhead light
4 volunteers with blue eyes
4 volunteers with brown eyes
4 volunteers with hazel green eyes

Experiment

1. If your camera has a red eye reduction feature, make sure it is turned off. Turn the flash on.
2. Use the masking tape, make two Xs on the floor about 4 feet away from each other in the center of the room.
3. Turn off all of the lights in the room except the overhead light. Close the blinds on any windows.
4. Have your first volunteer stand on one of the Xs and you stand on the other. Write down the color of their eyes.
5. Take three photos of the person's face but be sure to wait at least 3 minutes between each photo.
6. Repeat steps 4 and 5 with each of your volunteers.
7. Get the film developed. Look carefully at the photographs. Some of your volunteers will appear to have a bright red circle where their pupil should be. Write down whether you see any red eye in each photograph.

Conclusion

Count how many photographs had red eye for each eye color. Make sure you have an equal number of photos for each eye color. Make a bar graph of photos with red eye on the y-axis and eye color on the x-axis. Which eye color had the most red eye photos? Which eye color had the least red eye photos? Why do you think that is?

Do you notice any difference in how the red eye appears in the photo? That is, are some eyes redder than others? Is the whole pupil red or is there just a ring? Is it a solid red or a fuzzy red?

Explore Further

- Does the brightness or angle of the light affect red eye? Try taking photos when the room is dim and when it is bright. Place a lamp in front of the person, next to the person and behind the person. Do any of these set ups get rid of the red eye?
- Are people of Asian, African or European descent more likely to have red eye even if they all have brown eyes?
- Do animals have red eye in photos?
- If you can, try using the red eye reduction feature on your camera. Does it work?

Mars Dance

Adapted from [Astronomy from the Ground Up](#)

Set-up

Use the [Earth Month and Mars Month templates](#) and directions to mark out 2 circles on the floor using tape (or chalk if outdoors) with marks for each month in the Earth's and Mars' orbit.

Doing the Activity

Earth

Ask for a volunteer to be Earth and have her stand on her orbit. Have her demonstrate a day on Earth by rotating counter clockwise. Ask when she sees sunrise and sunset. When the sun is not in the sky, what would she see?

Ask Earth to go through a couple of full orbits by pacing out the marked distances to a beat. The rest of the class can clap along. When the Earth completes one full orbit, shout Happy Birthday! What is the period of time it takes the Earth to orbit (or revolve) around the Sun once? (1 year) What period of time does each step represent? (1 month)

Mars

Recruit another volunteer to be Mars and have him stand on his orbit at the point closest to Earth. This is *opposition* when the Earth is between the Sun and Mars - or Mars and the Sun are on opposite sides of the Earth.

Have the Earth go through a full day again, noting when she sees Mars rise and set in relation to sunset and sunrise. Mars will rise around sunset and set around sunrise. Since it is closer to Earth and up all night, opposition is the best time to view Mars.

Have Mars practice pacing out his orbit. Like Earth he will take one step for each beat or month but he has 22 steps in one year instead of 12. Each time he passes Earth (i.e. reaches opposition) have him raise his fist and yell "Charge!" (since Mars is named after the Roman god of war). After he tries it a couple of times, ask him how long it takes him to orbit the Sun once. It takes almost twice as long as the Earth, or 22 Earth months. So if you are 12 Earth years old, you are just over 6 Martian years old! How old are you in Mars years?

Earth & Mars

Now ask Earth and Mars to pace out their orbits at the same time. Remind Earth that every time she reaches her starting point, she should yell "Happy Birthday!" and remind Mars that every time he reaches opposition, he should raise his fist and yell "Charge!" This way we can keep track of how often opposition occurs. Clap out the beats and send the planets off on their orbits.

Have the other participants pay close attention to how often Mars reaches opposition. How many Earth years go by between oppositions (i.e. how many "Happy Birthdays!" for each "Charge!") They should see that opposition occurs every two years.

You may wish to repeat the dance again and have everyone pay attention to when the Earth and Mars are in *conjunction*, or line up on either side of the Sun.

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