

Name \_\_\_\_\_ Date \_\_\_\_\_

# Telescopes & *Technology*

## Activity 1 – One Small Speck of Dust

Look at the picture. Describe 2 differences you see between the stars in this image.

1 –

2 -

## Activity 2 - Through the Looking Glass

### **Materials**

- 1 piece of clay
- 3 lenses
- 1 piece of colored construction paper
- 1 ruler

1. Use modeling clay to form a base to hold one of the lenses upright on your desktop. Rotate your lens so that the light from the lamp passes through it.
2. Hold the construction paper so that the light passing through the lens lands on the paper. Slowly move the paper closer to or farther from the lens until you see the sharpest image of the light on the paper. One group member will hold the paper in this position, while another group member, uses the ruler to measure the distance between the lens and the paper in **cm**. Record the measurement in the data table below.

Lens # (on the bag)	Measurement ( <b><u>cm</u></b> )

3. Repeat steps 1 and 2 for the remaining lens.
4. List something the lenses have in common and something they have different.
5. What do you think is causing the distance each lens will focus to be different?
6. What do you predict will happen if you used 2 lenses for steps 1 and 2 instead of a single lens?

7. Try it out, using 2 different combinations; record your results in the data table below.

Lens #'s	Measurement (cm)

8. Was your prediction correct?

9. What happened when 2 lenses were used in to focus the light? Support your response with evidence (results in the data table)

### Activity 3 – Different Telescopes

Use pages **496 – 501** in the red science textbook to answer the following questions.

1. Name 1 way refracting and reflecting telescopes are similar and 1 way they are different.

2. What limits the size and magnification of a refracting telescope?

3. Name 2 ways the atmosphere limits what astronomers can detect in space.

4. What is the difference between optical and nonoptical telescopes?

5. What is the advantage of linking radio telescopes?