

LESSON 20

Part 2 Assessment—What Do You Know About the Characteristics and Behavior of Light?



COURTESY OF DANE J. TOLER/© NSRF

Make sure you carefully record your observations and data.

INTRODUCTION

This lesson is the assessment for Part 2: Reflection and Refraction. It also includes some questions that require you to apply knowledge and skills you acquired in Part 1: The Nature of Light. The assessment is in two sections. You will work by yourself to complete both sections. In Section A, you will conduct an inquiry into lenses. You will make observations and take measurements, and collect, record, and interpret data. In Section B, you will answer multiple-choice and short-answer questions. Some of these questions will require you to use your knowledge and skills to interpret diagrams, data tables, and experiments. You and your teacher will use the results of this assessment to evaluate how well you can apply the knowledge, concepts, and skills you have acquired in the first two parts of the module.

OBJECTIVES FOR THIS LESSON

Identify the lenses in a hand lens.

Make observations through two lenses.

Identify the characteristics of some images.

Determine the approximate focal length of two lenses.

Getting Started

- 1.** Your teacher will inform you when you will do each section of the assessment and how long you will have for each section.
- 2.** In both sections your work will be assessed partly on your layout, labeling, and drawing of data tables and diagrams.

MATERIALS FOR LESSON 20

For you

- 1 copy of Student Sheet 20.1:
Section A—
Performance
Assessment:
Examining a Hand
Lens
- 1 copy of Student Sheet 20.2:
Section B—Written
Assessment
Question Sheet
- 1 copy of Student Sheet 20.3:
Section B—Written
Assessment
Answer Sheet
- 1 hand lens
- 1 metric ruler, 30 cm
(12")
- 1 white screen

Section A—Performance Assessment

Inquiry 20.1 Examining a Hand Lens

PROCEDURE

Directions Read these instructions before you start working. Record your responses to A–F on Student Sheet 20.1: Section A—Performance Assessment: Examining a Hand Lens. Record any measurements you make using metric units (m, cm, or mm).

1. Examine your hand lens.

A. What name would you give to the shape of the lenses found in your hand lens?

2. First hold your hand lens exactly 1 cm from the print on this page. Next hold your hand lens exactly 7 cm from the page. At each distance, *keeping your eye level with the end of the ruler*, make observations through the large-diameter and the small-diameter lens.

B. Record your observations in Table 1 on Student Sheet 20.1.

C. What evidence is there that these lenses refract different colors or wavelengths of light by slightly different amounts?

3. Your teacher will direct your attention to some distant objects. Use the large-diameter lens to project an image of a distant object onto the white screen.

D. What characteristics does this image have?

4. Use the materials you have to determine the *approximate* focal length of each of these lenses.

E. Use a labeled diagram and/or write a paragraph describing the procedure you used to determine the approximate focal length of these lenses.

F. Record your results.

Section B—Written Assessment

Your teacher will outline the procedure for taking Section B of the assessment.