



# Are You My Mommy Mrs. Mudge?

## *Characteristics and Identification of Fingerprints*

### National Standards > Science Inquiry

- Develop abilities to do science inquiry
- Develop understandings about scientific inquiry

*Inquiry skills will be assessed only in the context of physical, Earth/space, and life sciences content*

### **Students will:**

- Ask simple scientific questions that can be investigated through observations combined with scientific information.
- Use simple equipment (e.g., magnifiers, magnets), tools (e.g., metric rulers, thermometers), skills (e.g., classifying, predicting), technology (e.g., electronic media, calculators, World Wide Web), and mathematics in scientific investigations.
- Use evidence (e.g., observations, data) from simple scientific investigations and scientific knowledge to develop reasonable explanations.
- Design and conduct simple scientific investigations.
- Communicate (e.g., draw, graph, write) designs, procedures, observations, and results of scientific investigations.
- Review and ask questions about scientific investigations and explanations of other students

### Ohio: Science > Scientific Inquiry Standards

- Develop scientific habits of mind using the processes of scientific inquiry to ask valid questions and to gather and analyze information
- Develop hypotheses and make predictions

### **Benchmark(s)**

#### **Grades 3-5**

- B.** Design and conduct a simple investigation to explore a question.
- A.** Use appropriate instruments safely to observe, measure and collect data when conducting a scientific investigation.
- B.** Organize and evaluate observations, measurements and other data to formulate inferences and conclusions.

### Ohio: Science > Scientific Ways of Knowing Standard

- Realize that the current body of scientific knowledge must be based on evidence, be predictive, logical, subject to modification, and limited to the natural world

### **Benchmark(s)**

#### **Grades K-3**

- A.** Recognize that there are different ways to carry out scientific investigations.
- B.** Realize that investigations can be repeated under the same conditions with similar results and may have different explanations.

#### **Grades 3-5**

- C.** Explain the importance of keeping records of observations and investigations that are accurate and understandable.

## **Objective**

Students will identify and classify fingerprints by their likenesses and differences.

## **Vocabulary**

- Compare
- Observe
- Likeness
- Difference
- Conclusion

## **Materials**

- 3 by 5 inch index card cut into 3 by 2 ½ sections, one per student
- Ink pad
- Transparencies
- Overhead projector
- Measurement tools
- Magnifying glass
- Student Handout

## **Activity**

### **Teacher will:**

- Share with the class and post in the classroom the benchmarks addressed with this lesson.
- Help individual students place left thumb into ink pad and then onto index card, creating thumbprint.
- Label, enlarge and copy several fingerprints onto a transparency so that all students' fingerprints are included.
- Provide time for students to use magnifying glasses, measurement tools, etc to observe fingerprints.
- Introduce/review scientific vocabulary related to the lesson.
- Hold up one fingerprint card and show the same fingerprint on the overhead while asking students to use their sense of sight to describe what they see.
- Conduct class discussion during group time focusing on characteristics of the fingerprints that can be identified and help students to classify and group fingerprints based upon characteristics.
- Post fingerprint cards in groups as students classify them and label groupings by the characteristics used.
- Ask students questions about the fingerprints.
  - How can we tell whose fingerprint this is?
  - What if we compare these two fingerprints?
  - What would happen if we put these fingerprints in groups?
  - How can we use tools and/or numbers to help us group the fingerprints?
  - If we took your fingerprints now, what would we do to figure out who you are in comparison to the pictures we have been reviewing?
- Create his/her thumbprint on index card
- Participate in group discussion
- Use his/her senses and tools to make observations of the fingerprints
- Use appropriate scientific vocabulary
- Respond to critical thinking questions
- Complete student handout stating his/her thoughts

**Performance Assessment:**

- Participate in group discussion
- Answer higher level thinking questions
- Utilize senses and tools to make observations
- Use scientific vocabulary in oral and/or written work
- Complete student handout stating a conclusion based upon information collected by the class (I think \_\_\_\_\_ because \_\_\_\_\_.)

