

3.2

MINERAL HARDNESS

How do scientists assign mineral hardness values?

MATERIALS

- Mineral samples 6A, 8A, 9A, 12A, 13A, 14A, 16A, 17A, 18A, 19A and 20A
- Mohs relative hardness scale
- Streak plate (tape edges)
- Wire nail (large paper clip works as well)
- Glass plate or shot glass
- Copper penny
- Finger nail

PRE-LAB ACTIVITY

Pull sample 9A from your mineral kits and follow the steps to predict the mineral hardness values based on Mohs Hardness Scale.

Relative Hardness Value: _____ Predicted Mineral Sample Name: _____

DIRECTIONS

1. Choose one of the minerals listed to begin testing the hardness.
2. With the glass plate resting on your desk (**not in hand**) firmly press the sample and try to scratch the glass plate.
3. If the sample does not scratch the glass, use the wire nail and attempt to scratch the mineral sample (if it is not scratched by the wire nail, continue down the list of materials in order of Mohs relative hardness until you can scratch the mineral).
4. If the sample does scratch the glass, repeat the test using the streak plate (**not in hand**).
(Hint: you should be able to feel the scratch in the streak plate, if a powder is produced, the mineral is rubbing off and not scratching the streak plate)
5. Using Mohs Relative Hardness Scale, attempt to assign a relative hardness value to the sample and the possible mineral name.
6. Repeat for all 11 samples to determine mineral hardness. (Use chart on next page)

3.2 MINERAL HARDNESS CONTINUED

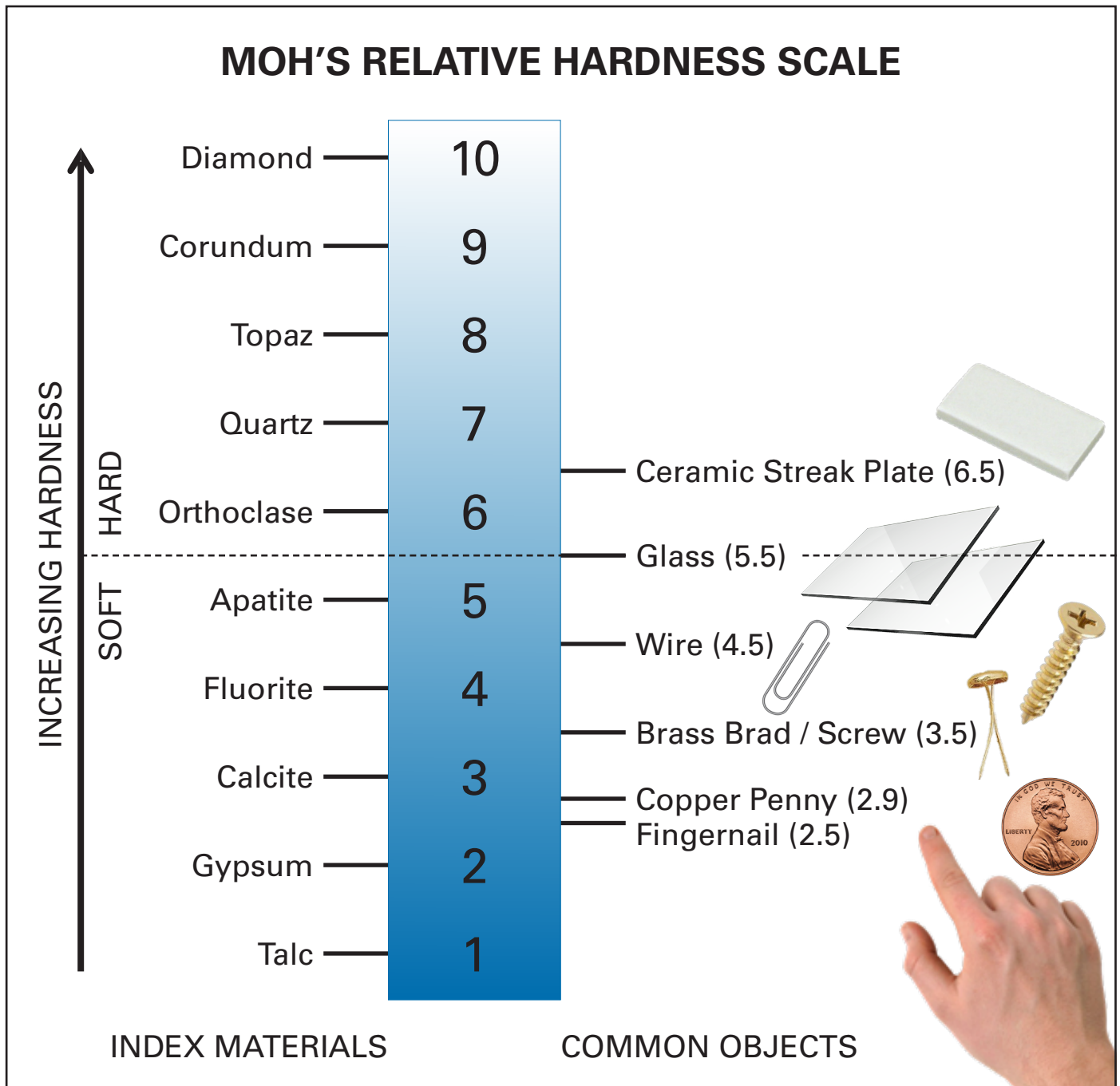
Sample #	Hardness rating on Mohs scale	Predicted mineral sample name
6A		
8A		
9A		
12A		
13A		
14A		
16A		
17A		
18A		
19A		
20A		

REFLECTION

Look at Mohs hardness scale, minerals are typically defined as hard or soft minerals.

1. Based on your scratch test items (streak plate, glass, wire nail, copper penny, and fingernail), which item can be used to quickly determine if a mineral is to be categorized as a hard or soft mineral?
2. What makes a mineral hard or soft?
3. How do you differentiate between items above 6.5 on the scale?

3.2 MINERAL HARDNESS CONTINUED



Source: Ohio Oil and Gas Energy Education Program