

Introduction: What is Hard? (10 minutes)

Start by asking: "What do you think it means for something to be 'hard'?" Let's talk about your ideas! Generally, hard things don't easily change their shape when you press them.

Time for the 'Mystery Bag'! I've put one hard object and one soft object inside. Can you feel them without looking and describe how they are different? What do you think they are? (Reveal the objects after guessing).

Activity 1: The Hard Object Hunt (15 minutes)

Let's become Hardness Detectives! Your mission, should you choose to accept it, is to find 5-7 things around our learning space or home that you think are hard. I'll come with you to make sure we're safe.

As we find each object, let's talk about it: "Why did you pick this one? How does it feel? Does it bend or squash easily if you try (gently)?"

In your 'Hardness Detective Notebook' (a few sheets of paper), you can draw or write the names of the hard objects you found.

Activity 2: Describing Hardness (10 minutes)

Let's look at the hard objects we collected, and maybe a few soft things too for comparison. When we describe how things feel, we can use special words. For hard things, some words could be: *smooth, rough, bumpy, solid, rigid, firm*.

Touch each hard object. Can you use one or two of these words (or your own!) to describe its surface and how it feels? For example, "This rock feels hard and ____." "This spoon feels hard and ____."

Activity 3: The Super Scratch Test! (15 minutes)

Detectives, sometimes we want to know *how* hard something is compared to another object. A cool way scientists sometimes test this is to see if one object can scratch another. The object that makes the scratch is usually harder than the object that gets scratched.

Safety First! We'll only use very safe things for our scratch test today, and we'll be gentle. We won't scratch anything valuable or that could break!

Let's try:

- Can your fingernail gently scratch one of the plastic toys? Can it scratch the wooden block?
- Now let's try this plastic ruler. Can the plastic ruler (using its edge gently) try to scratch the wooden block? Can it try to scratch the metal spoon? Look closely for any tiny mark.

Let's test a few pairs of your hard objects. Which one do you think is harder in each pair? The one that makes a mark, or the one that gets a mark?

You can make notes in your 'Hardness Detective Notebook,' like: "My fingernail scratched the plastic toy, but not the rock."

Activity 4: Creative Hardness! (15-20 minutes)

You're now an expert Hardness Detective! Let's use your new knowledge in a fun, creative way. You can choose one of these activities:

1. **Art Challenge:** Draw a picture of a superhero whose special power is being super hard! What would they look like? What could they do? Or, you could draw a cool scene using only things

that are hard.

2. **Building Challenge:** Using building blocks (like LEGOs or wooden blocks) or some of the hard items we found, can you build something really strong? Maybe a fort, a tower, or a bridge? Why do you think hard materials are good for building strong things?

When you're done, tell me about your creation and how it shows something about 'hardness'!

Conclusion & Review (5 minutes)

Wow, great detective work today!

- What did we learn about hard objects?
- Can you name three hard things we found or talked about, and tell me one word to describe each one?
- What was the most interesting hard object or test for you today?

You did an amazing job exploring hard things!