Material Detective

SD-B126 / STRATEGISTS · AGES 10–12

Explain why five objects are made from their materials.

YOU NEED: Five household objects, pencil

ANALYZE	Pick five objects: a spoon, a mug, a pencil, a sock, a bottle. What is each made from?
CHOOSE	Why might that material be a good choice? Think about weight, strength, heat and cost.
TEST	Imagine swapping materials: a paper spoon, a metal sock. What would go wrong?
REFLECT	Which swap would be a surprising improvement? Why?

MATERIAL TABLE

Object	Made from	Why this material works

A swap that fails

If a ___ were made of ___

A swap that might work

If a ___ were made of ___

Material Detective

SD-B126 / GROWN-UP GUIDE · STRATEGISTS

A little help beside the learner. Read this page first; keep the answers here.

LEARNING GOAL
Practice linking material properties to a purpose.

BEFORE YOU BEGIN
You need: Five household objects, pencil. Use safe unbreakable objects only.

HOW TO GUIDE
Choose safe objects and avoid breakable glass. Look for properties like strong, flexible, waterproof or heat-resistant. Ask why the maker chose this material over another one.

WHY IT MATTERS
Engineers choose materials by properties. Asking why something is made of what it is made of is the start of design thinking.

LOOK FOR THIS REASONING
Look for a property named (strong, light, waterproof) and tied to the object's job.

IF THEY GET STUCK
Ask: what does this object need to do? Would it work if it was too heavy, too soft or too hot to hold?

MAKE IT GENTLER
Look at just three objects.

ADD A LITTLE STRETCH
Find an object that is made of two or more materials and explain each.

A USEFUL STOPPING POINT
Find the oldest object in the house and guess how it was made.