



Flexible vs. Rigid Materials

Week 4 — Monday | Flexibility Investigation

Reading Time

Materials have a property called **flexibility**. Flexibility describes how easily something bends. A **flexible** material bends easily without breaking. A **rigid** material does not bend easily at all.

Think about a rubber band. When you pull on it, it stretches and bends. That makes rubber flexible. Now think about a wooden ruler. If you try to bend it, it is very hard to make it change shape. Wood is more rigid than rubber.

Some materials are in between. A plastic straw is somewhat flexible — it bends a little but not as much as a rubber band. Engineers think about flexibility when they design things. A bridge needs to be mostly rigid so it holds weight. A shoe needs to be somewhat flexible so it moves with your foot.

Understanding flexibility helps us choose the right material for the job. The more we know about materials, the better our inventions can be.



Reading Questions

1. What does flexibility mean?

2. What is the difference between flexible and rigid?

3. Why did the author compare a rubber band and a wooden ruler?

4. Why is flexibility important when engineers design things? Explain with your own example.

Vocabulary Grid

Write a definition or draw a picture for each word.

Flexible	
Rigid	
Bend	
Stretch	
Material	
Engineer	

Flexibility Comparison Chart

Test each item. Does it bend easily, bend a little, or not bend at all?

Item	Bends Easily	Bends a Little	Does Not Bend
Rubber Band			
Plastic Straw			
Wooden Popsicle Stick			
Yarn String			
Metal Spoon			
Paper Clip			
Cloth Napkin			
Crayon			

Flexible vs. Rigid Hunt

Find 5 flexible and 5 rigid objects around your house.

Flexible Objects	Rigid Objects
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____

Bend Test

Try to bend each item with your fingers. Draw a bent shape or a straight line to show what happened.

Item	Draw What Happened	Flexible or Rigid?
Straw		
Yarn		
Pencil		
Plastic Bag		
Coin		