MATERIALS

What are some of the properties of materials?

What is a Material

- Materials are things that are used to make the objects around us

Examples

Wood

Plastic

Glass

Cloth

What kind of objects can materials be of use?

- Different kinds of materials can be combined or molded into making other items that we use in our daily lives

Examples

Plastic Bottle

Wooden Chair

Eyeglasses

What are some properties of Materials?

- Materials have properties that help them serve specific purposes.

Take Note!

- A **property** is a quality of something
- Different materials have different properties

Down below are some properties of a material

Strength

- The ability to support a heavy load without breaking or tearing

Examples of Strong Materials

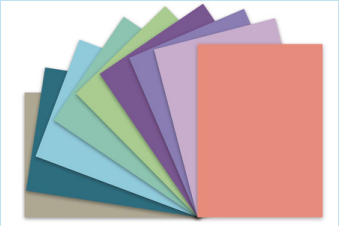
Wood

Plastic

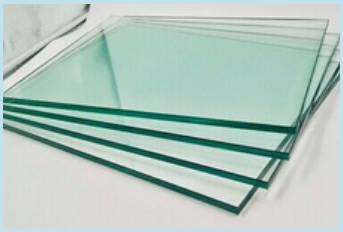
Concrete

Steel

Examples of Weak Materials



Paper



Glass

Styrofoam

Tissue

How to test the strength of the material?

- By trying to break the material using loads or by tearing it with both hands

Examples

Metal Pole is **Strong** because it's hard to break it

A piece of paper is **Weak** because it's easy to tear it

Flexibility

- The ability to bend without breaking

Examples of Flexible Materials

Rope

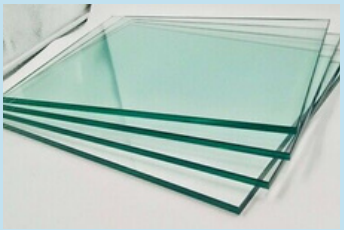
Rubber

Thread

Cloth

Examples of Stiff Materials

Wood



Glass

Steel

Concrete

How to test the flexibility of the material?

- By trying to bend the material with both hands

Examples

A rubber hose if **Flexible** because it's easy to bend it

A wood is **Stiff** because it's hard to bend it

Float

- Ability to float on water

Examples of Materials that Floats

Styrofoam

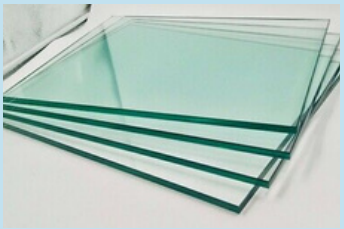
Plastic Bottle

Balloon

Feather

Examples of Materials that Sinks

Stone



Glass

Steel

Concrete

How to test the material if it would float?

- By pushing an object into the water and observing what will happen.
  - Object should not sink underwater and floats on top of the water.

Examples

A rubber duck can **Float** because it's less dense than water.

A coin will **Sink** because it's denser than water.

Take Note!

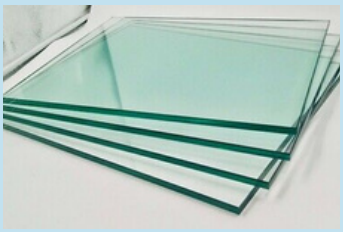
- Another explanation for these examples above are
  - The Styrofoam is less dense compared to the water
  - The Coins is more dense compared to the water.
- **Density** is a measure of how heavy something is compared to its size.
  - If an object is more dense than the water, the object will sink
  - If the object is less dense than the water, the object will float

Waterproof

- Does not absorb water

Examples of Materials that are Waterproof

Plastic



Glass

Steel

Styrofoam

Examples of Materials that are not Waterproof

Cotton

Paper

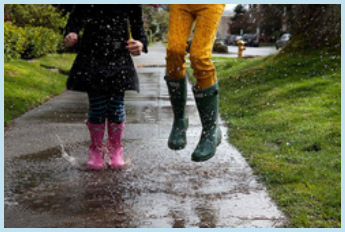
Cloth

Thread

How to test the material if it's waterproof?

- By dipping the material in water or pouring water over the material.
  - Object should remain dry

Examples



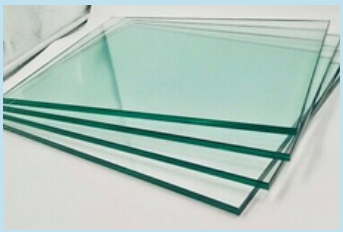
Rubber boots are **Waterproof** because you're feet will stay dry

Some sneakers are **Not Waterproof** because you're feet will get wet

Transparency

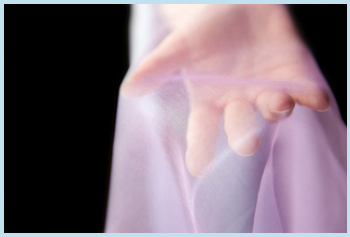
- Has the ability to allow light to pass through

Example



Glass

Clear Bottle



Thin Fabric

How to test the transparency of the material?

- By shining light from one side of the object and observing how much light can be seen on the other side of the object.

Examples

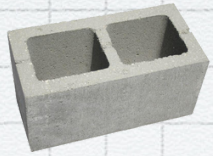
Glass is **Transparent** because it allows light to pass through

Exercise 1

Can you identify which are the strong and weak materials?


Wood


Paper


Concrete


Wool


Glass


Styrofoam


Tissue

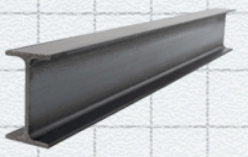

Copper


Steel

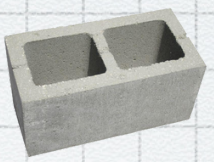

Plastic

Exercise 2

Can you identify which are the flexible and stiff materials?


Steel


Rubberband


Concrete


Rope


Wood

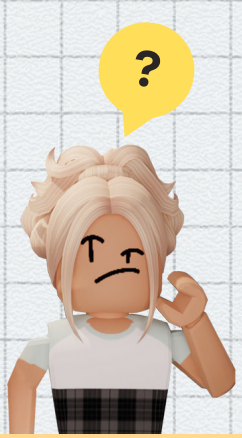

Cloth


Thread


Glass


Plastic Case


Plastic Bag

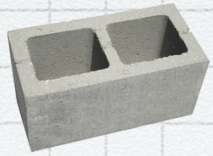


Exercise 3

Can you identify which of these materials can float?


Penny


Plastic Bottle


Concrete

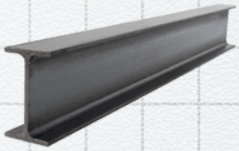

Wood


Glass


Styrofoam


Feather


Balloon


Steel


Rock

Exercise 4

Can you identify which are the waterproof materials?


Rubber boots


Tissue


Plastic Bag


Umbrella


Paper

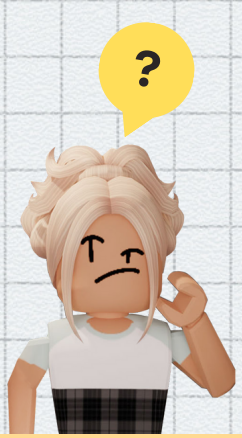

Cloth


Steel


Glass

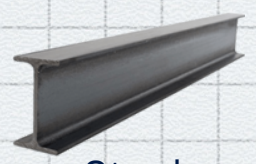

Cotton


Raincoat



Exercise 5

Can you identify which of these materials are transparent?


Steel

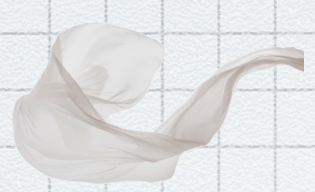

Plastic Bottle


Penny

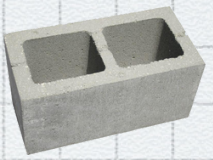

Rock


Glass

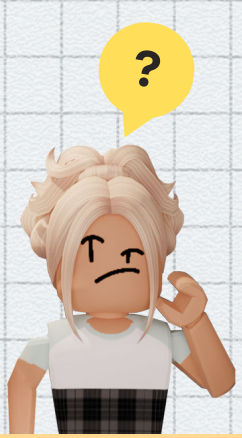

Cellophane


Thin Fabric


Diamond


Concrete


Wood



Correct Answers

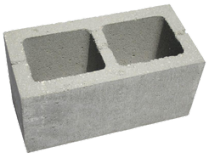
Exercise 1

Strong


Wood


Wool


Plastic


Concrete


Steel

Weak


Styrofoam


Tissue


Glass


Paper


Copper

Correct Answers

Exercise 2

Flexible

Rubberband

Thread

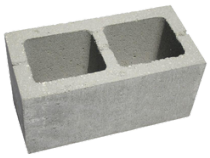
Rope

Cloth

Plastic Bag

Stiff

Steel



Concrete

Wood

Plastic Case

Glass

Correct Answers

Exercise 3

Float


Styrofoam


Plastic Bottle

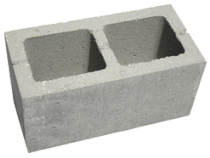

Wood


Feather

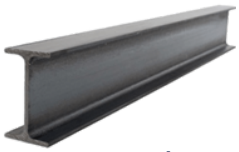

Balloon

Sink


Penny


Concrete


Glass


Steel


Rock

Correct Answers

Exercise 4

Waterproof


Glass


Plastic Bag


Raincoat


Rubber boots


Umbrella

Not Waterproof


Cloth


Wood


Paper


Tissue

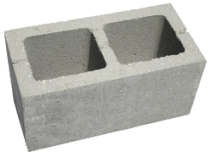

Cotton

Correct Answers

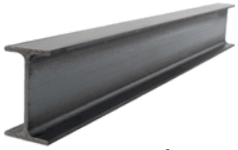
Exercise 5

Transparent

Penny



Concrete



Steel

Rock

Wood

Not Transparent

Plastic Bottle

Diamond

Cellophane

Thin Fabric

Glass

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