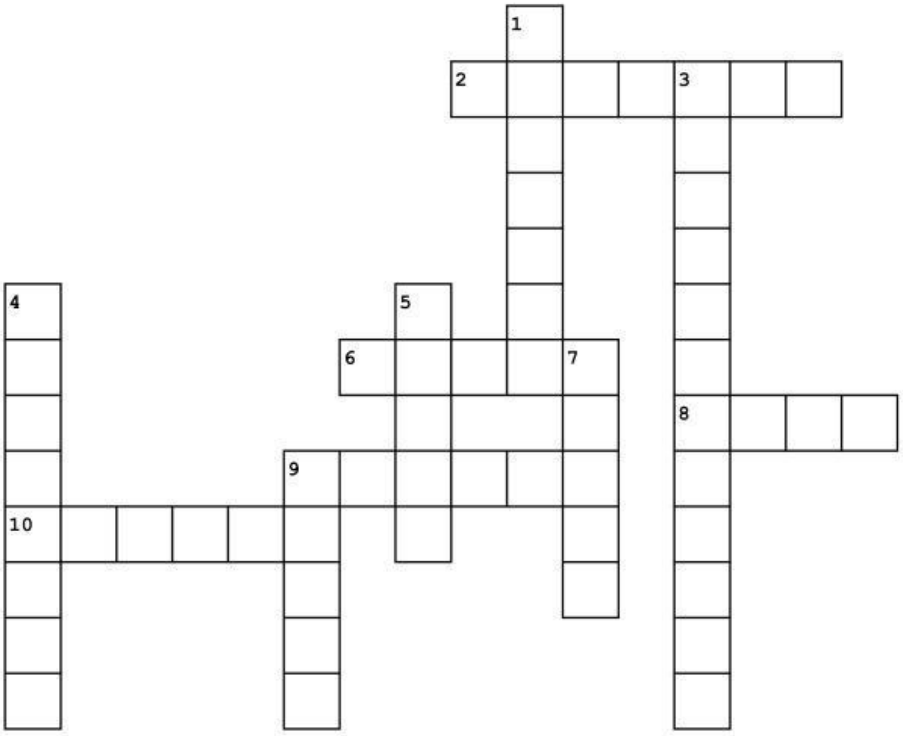
Materials



Across

2. Very brittle material. Good insulator too.
6. Material used for making windows.
8. Expensive material, rings commonly made from this.
9. Made by mixing copper and tin.
10. One of the best insulators.

Down

1. Metals containing iron.
3. Temperature, where material turns from solid to liquid.
4. Composite material.
5. Used to improve properties of metals.
7. Made by iron and carbon.
9. formed by mixing copper and zinc.

LIVEWORKSHEETS

MATERIALS AND THEIR PROPERTIES

Match the adjectives with their description.

brittle	deforms under pressure
ductile	not easily cut, broken, torn
hard	not easily broken or damaged
stiff	hard but easily broken
strong	difficult to bend or move
tough	solid or stiff and difficult to bend or break

Explain how a tensile test works.

It's performed by _____ a sample of material apart until _____, while measuring the _____ and _____.

The **stress** is defined by the force applied to the test sample _____ _____ the cross-sectional area = Newtons per metre squared = metric unit for _____ = Pascals

Strain describes how much _____ has occurred with that applied force and it is found by dividing the change in length by the original length.

As the stress _____ the material begins to deform, this initial linear region is **elastic deformation** = if we remove the force, the material will regain its _____ shape.

The end of this linear elastic deformation is marked by the _____ _____, form here out any additional stress will cause permanent deformation = **plastic deformation**.

The stress continues to rise until it hits the **ultimate tensile strength point** = the most stress the material can _____.

From here less stress is needed as the material begins to _____ in cross section = this is called **necking** and it continues until the material fractures.

Why is the number of maximum allowable stress needed?

What happened to the ships in WWII?

How can you measure hardness?

With a _____ _____ _____:

1.
2.
3.

The difference in _____ between the _____ and _____ step is then used to calculate the hardness of the material.

Why is the steel's ability to be heat treated important?

LIVEWORKSHEETS