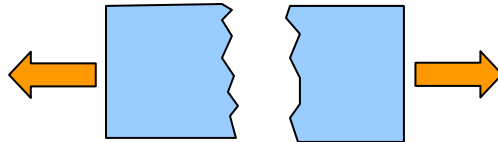


Soapy Stress Worksheet Answers

1. **Tensional Stress.** Draw a picture of the soap and how it was broken. Draw arrows for the forces acting on the soap to show that you know it was tensional stress.

NOTE: Most of this worksheet is observational, but the pictures the students draw should have the force arrows shown here.

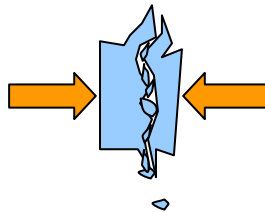


Observe and describe the area where the soap broke.

What is a real life example of tensional stress?

A ridge like the Mid-Atlantic Ridge is formed when two tectonic plates pull apart from each other.

2. **Compressional Stress.** Draw a picture of the soap and how it was broken. Draw arrows for the forces acting on the soap to show that you know it was compressional stress.

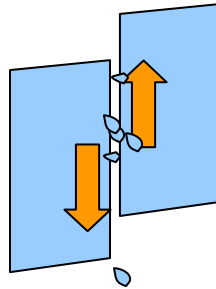


Observe and describe the area where the soap broke.

What is a real life example of compressional stress?

A mountain range, like the Rocky Mountains, is formed when two tectonic plates are pressed together.

3. **Shear Stress.** Draw a picture of the soap and how it was broken. Draw arrows for the forces acting on the soap to show that you know it was shear stress.



Observe and describe the area where the soap broke.

What is a real life example of shear stress?

The San Andreas Fault is an example, because one tectonic plate is pulling one way, and the other plate is pulling the other way.

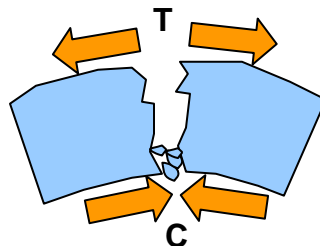
4. **Force Analysis.** Try to break a rock in the same types of ways you broke the soap. Why is it harder to do? Use the word “force” in your answer.

The rock needs more force to break than the soap.

True or False: Geotechnical engineers *measure* the amount of force it takes to break a rock using specialized and expensive equipment.

BONUS PROBLEM

5. **Combination stresses.** Draw a picture of the soap and how it was broken when you bent it, using both compressional and tensional stresses. Include force arrows and label with a C the arrows that show compression and with a T the arrows that show tension.



Observe and describe the area where the soap broke.