

Name \_\_\_\_\_

Go to: [http://www.classzone.com/books/earth\\_science/terc/navigation/investigation.cfm](http://www.classzone.com/books/earth_science/terc/navigation/investigation.cfm), and scroll down to chapter 11. Click on the following and answer the questions below.

### **How Do Rocks Respond to Stress?**

ES1102 Brittle and Ductile Deformation

1. What are the two ways rocks respond to stress? \_\_\_\_\_
2. When a rock breaks, it is called \_\_\_\_\_.
3. When rocks bend or flow, like clay, it is called \_\_\_\_\_
4. Which image shows an example of brittle deformation? \_\_\_\_\_
5. Which image shows an example of ductile deformation? \_\_\_\_\_

ES1102 Stress Simulations: Choose an environmental condition for rocks, then select a type of stress to apply.

Examine the animations and resulting structures for each combination

Low temperature and pressure conditions: brittle deformation

1. What is created when compression occurs? \_\_\_\_\_
2. What is created when tension occurs? \_\_\_\_\_
3. What is created when shear occurs? \_\_\_\_\_

High temperature and pressure conditions: ductile formation

1. What is created when compression occurs? \_\_\_\_\_
2. What is created when tension occurs? \_\_\_\_\_
3. What is created when shear occurs? \_\_\_\_\_

ES1102 Geologic Structures: Click each image to see a larger version. Examine the photograph and try to identify the geologic structure. To see an outline of the structure, move your cursor over the image.

- a. \_\_\_\_\_                      b. \_\_\_\_\_                      c. \_\_\_\_\_
- d. \_\_\_\_\_                      e. \_\_\_\_\_

Next back out of this activity and click on:

### **What Forces Created These Geologic Features?**

ES1106 Faults and Folds: analyze the following diagrams and predict what caused them.

ES1106 Interpreting a Fault: Sketch the fault including layers A and B. Label the fault, hanging wall, and footwall. Name the type of fault, and draw arrows to indicate the direction of stress.

ES1106 Interpreting Another Fault: Sketch the fault including layers A and B. Label the fault, hanging wall, and footwall. Name the type of fault, and draw arrows to indicate the direction of stress.

ES1106 Basin and Range

1. What can you infer about the forces that built the mountains of the Basin and Range province?

ES1106 Northern Rocky Mountains

1. What type of stress was responsible for building the northern Rocky Mountains?

ES1106 Rio Grande Rift

1. What type of faulting is indicated by the cross section of the Rio Grande rift?
2. What type of stress formed the mountains near Albuquerque, New Mexico?

ES1106 Appalachian Mountain Belt

1. What type of force was responsible for creating the folds and faults in the Appalachian Mountains?
2. What tectonic process might be responsible for applying this force over an area as large as the Appalachian Mountains?

Scroll back out and move to the top menu and click on “Visualizations”, scroll back down to chapter 11 and click on “**ES1105 Observe an animation of the Himalayas forming.**”

Please summarize how the Himalayas formed: