

Name: _____ Date: _____

Directions: As you complete the Bridge Unit, work through the questions below. Answer each question as thoroughly as possible and add to your answers as you encounter additional information. You will receive points for both the correctness of your answer as well as the level of thoroughness.

1. Identify four types of bridges from the unit:

2. The article “How Bridges Work” discusses three major types of bridges. List each type and then describe how tension and compression act on each one.

- a. _____ - _____

- b. _____ - _____

- c. _____ - _____

3. Why does increasing the height of a beam increase its strength? _____

4. Dissipation is an important concept in bridge design. Why is understanding the difference in dissipation among different designs important in choosing the right bridge for every location? _____

5. Read this short description about the “roman aqueducts” and identify the type of bridge design used and what the aqueducts transported.

<http://www.inforoma.it/feature.php?lookup=aqueduct>

The design used was the _____ bridge and they carried _____.

6. Are suspension bridges and cable-stayed bridges the same kind of bridge? Why? _____

7. What type of movement occurs when torsion is happening? _____

8. The Tacoma Narrows Bridge (discussed in two videos found in this unit) suffered from another force which acts on bridges. Identify it and explain why or how it occurs: _____

9. Which bridge is the correct one for each of the sites proposed in the “Build a Bridge” game and the “Bridge Challenge”.

- a. Canyon Gorge(BB)- _____
- b. Freeway(BB)- _____
- c. Busy River(BB)- _____
- d. Ocean Bay(BB)- _____
- e. Location 1(BC)- _____
- f. Location 2(BC)- _____
- g. Location 3(BC)- _____
- h. Location 4(BC)- _____

10. You are the highway Supervisor for Elizabethtown. There is a small bridge in your area that is beginning to show signs of structural weakness. You must do something and are told that a speedy fix is more important than the cost- the town cannot afford to have the bridge closed for more than a weekend. You remember hearing about a new technology that increases bridge strength and is quick and easy to install. Convince me, your boss, that this is the best choice for meeting our needs.

11. For each force draw an object and use arrows to demonstrate how the force acts on it.

TENSION	COMPRESSION	SHEAR	TORSION

12. For each of the materials below, give one pro OR con for each and an example of an application in which it can be used:

STEEL	WOOD	CONCRETE	REINFORCED- CONCRETE

13. State three things you learned from this unit that you did not know or that you found interesting: _____
