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DATE: _____

Performing Well Under Pressure Diamonds and Crystalline Structure

Diamond Discussion Worksheet *ANSWER KEY*

After watching Clip 2, “Diamond Formation,” answer the following questions:

1. What conditions are essential to the formation of a diamond?

Extreme heat and pressure

2. What common and plentiful element are diamonds made of?

Carbon

After viewing the 3D graphite and diamond structures:

3. Describe the crystalline structure of graphite:

Responses may include: each carbon atom is surrounded by three other carbon atoms, the atoms bond into separate sheets

4. Describe the crystalline structure of diamonds:

Responses may include: each carbon atom is surrounded by four other carbon atoms, the atoms bond into eight sided figures,

5. Why is the diamond structure so strong?

Because of the arrangement of bonds/internal structure

After watching Clip 3, “Diamond Formation,” answer the following questions:

6. Where are diamonds formed? Why is this special?

Deep within the earth, most other minerals are formed in the earth’s crust

7. What kind of information do diamonds offer geologists?

Information about the inner earth



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After watching Clip 4, “Inclusion Conclusions,” answer the following questions:

8. How do geologists determine the age of a diamond?

By dating the material found within inclusions

9. How old are diamonds?

2 – 3 billion years old

10. Beyond the diamonds themselves, what information can inclusions provide for geologists?

Information about the composition and conditions of the inner earth

After exploring the “Diamonds: Historical Diamond Reference Section” and the “Diamonds at the Paris Natural History Museum” Web sites, answer the following question:

11. How have diamonds been represented in folk lore, superstitions, and art? Add any other points of interest you discover about these gems.

Potential answers may include: In the 1500's it was believed in India that Diamond dust was a poison whereas in Europe it was believed Diamonds protected against the plague; the diamond was called the stone of God in manuscripts from the Middle Ages. The diamond is therefore the stone of kings and has often been seen as an affirmation of power and an instrument of seduction.