***Treasure Earth Data Sheet: Rock Creek Park***

Challenge #’s

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Return Time:

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When you have completed your data collection, you will be   
able to answer the following question with evidence:

**Is this a healthy watershed? Why or why not?**

***Rules****: Stay with your group; Come back on time; Be safe; Don’t leave your group; LEARN!*

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| **Challenge #1**  Is the air moist? | *(\*Before doing the tests* ***guess*** *what you think the answers will be.\*)*  *Guess: Rainfall:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Humidity %:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  *(Hint: 70% is the general humidity in this area in the summer)*  Rainfall Amount:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Humidity %: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Cloud Type:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | How are **rainfall and humidity** indicators of the health of a watershed? |
| **Challenge #2**  Which substance is warmer? | Measure the air, the water and the soil temperature.  *Which do you think will be warmer? Guess\_\_\_\_\_\_\_\_\_\_\_\_* / now test!  Air:\_\_\_\_\_\_\_\_\_\_\_\_\_ Soil: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Water:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Is this factor a biotic or abiotic factor of the watershed?  Biotic Abiotic |
| **Challenge #3**  How clear is that water and is there life? | *Estimate clarity: \_\_\_\_\_\_\_\_\_\_\_\_ (before testing, guess how clear the water is?)*  Actual Clarity:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2nd test: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Did you observe any life?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | How is the **clarity of the water** an indicator of the health of a watershed? |
| **Challenge #4:**  Which surface is cooler? | *Select and list 3 different surfaces:*  *1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  *Which surface will be coolest? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (guess)*  **Actual Temperatures:**  Surface 1: \_\_\_\_\_\_\_\_\_\_\_ Surface 2:\_\_\_\_\_\_\_\_\_\_\_\_ Surface 3:\_\_\_\_\_\_\_\_\_\_\_  Amount of Impervious Surfaces: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_% | How is **surface temperature** related to the health of a watershed? |
| **Challenge #5:**  Evidence of Animals | 3 Signs of Wildlife: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  What animals **could** live in this habitat? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | How is **wildlife** an indicator of the health of a watershed? |
| **Challenge #6:**  How much shade?  *(Tree canopy)* | The Tree Canopy covers and shades everything beneath it.  *Estimate: \_\_\_\_\_\_\_\_\_\_%* / Actual Canopy Cover percentage: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ | How is **tree canopy** related to the health of a watershed? |
| **Challenge #7:**  How clear is that water and is there life? | *Estimate clarity: \_\_\_\_\_\_\_\_\_\_\_\_ (before testing, guess how clear the water is?)*  Actual Clarity:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2nd test: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Did you observe any life?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | How is the **clarity of the water** an indicator of the health of a watershed? |
| **Challenge #8:**  Could you grow corn here? Apples? Tomatoes? | *Guess: yes or no?* / Soil Consistency:\_\_\_\_\_\_\_\_\_\_\_ Soil Color: \_\_\_\_\_\_\_\_\_\_\_\_ *What is living in the soil?*  *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* | Is this factor a biotic or abiotic factor of the watershed?  Biotic Abiotic |
| **Challenge #9:**  How tall is a tall tree? | *Guess how tall this tree is:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* / (Do this by looking at the tree.)  Actual Measurements: Height of the tree? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Circumference? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Tree Moisture % \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | How are **trees** related to the health of a watershed? |

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| **Challenge #10:**  How diverse is the area? | Record how many different species you observed in each of your 1 foot square samples? 1st\_\_\_\_\_\_\_\_\_\_ 2nd\_\_\_\_\_\_\_\_\_\_ 3rd \_\_\_\_\_\_\_\_\_\_\_  Average number of species: \_\_\_\_\_\_\_\_\_\_\_\_\_  List some examples: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | How is **diversity of life** an indicator of the health of a watershed? |
| **Challenge #14:**  Which surface is cooler? (roof) | *Select and list 3 different surfaces:*  *1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  *Which surface will be coolest? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (guess)*  **Actual Temperatures:**  Surface 1: \_\_\_\_\_\_\_\_\_\_\_ Surface 2:\_\_\_\_\_\_\_\_\_\_\_\_ Surface 3:\_\_\_\_\_\_\_\_\_\_\_  Amount of Impervious Surfaces: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_% | Is this factor a biotic or abiotic factor of the watershed?  Biotic Abiotic |
| **Challenge #15:**  Where is the water?  (tower trail) | Guess how much moisture (water %) you think is in:  Guess: the soil \_\_\_\_\_\_\_\_\_\_, the trees\_\_\_\_\_\_\_\_\_  Soil Moisture %: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; Tree Moisture %: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | How is **soil moisture** an indicator of the health of a watershed? |
| **Challenge #16:**  How fast is the wind blowing? (tower) or height | *Estimate: (how fast?) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_mph /* **Try this 3 times to confirm.**  Actual Speed: #1\_\_\_\_\_\_\_\_; #2\_\_\_\_\_\_\_\_\_\_\_; #3\_\_\_\_\_\_\_\_\_\_\_; Average:\_\_\_\_\_\_\_\_\_\_  The Height of the tower? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Is this factor a biotic or abiotic factor of the watershed?  Biotic Abiotic |
| **Challenge #17:**  How does a rain barrel help? | What is the advantage of capturing water at this location? | How can a rain impact erosion in a watershed? |
| Return Home | Can you find your way back? ***Go to Treasure Earth 1***; Don’t be late! |  |

**Based on your team and class data, how healthy is this watershed?**

1. Where did you find moisture? Circle all that apply: Air Soil Trees
2. Is there diversity of plants and animals? Yes No
3. Are the majority of surfaces you observed impervious surfaces? Yes No
4. Is the water clear and suitable for life? Yes No

**Evaluating the data:**

**Based on these results is this watershed healthy? Why or why not?**

**What other tests could you do to evaluate a healthy watershed?**

**What specific actions can you take to help improve the health of the watershed?**