Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_

**B Work: Heat Transfer**

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| **QUESTION/PURPOSE:** **Manipulated Variable (MV)** **Responding Variable(RV)**Does the amount of sunlight (full sun, shade) (MV) affect how much water evaporates (RV)? |
| **HYPOTHESIS (IF, THEN, BECAUSE)** **:** **Manipulated Variable (MV)** **Scientific Reason (WHY)** **Responding Variable (RV)**If the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(MV), increases, decreases, changes, then the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(RV) will increase, decrease, change, because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |
| **Manipulated Variable Units** | **Responding Variable Units** | **Controlled Variable(s) Units** |
| **PROCEDURES: Manipulated Variable (MV)** **Responding Variable (RV)** **Controlled Variable(s)** **Repeated Trials** **Logical Steps**1. Let water sit for at least 2 hours to come to room temperature.
2. Measure water and record in data table. Pour the identical amounts of water into each saucer.
3. Place the saucer where the sun will shine on them, a windowsill is a good place.
4. Place a tent of paper, aluminum foil or cardboard over one of the saucers. Don’t seal the container, just cover lightly.
5. After 3 days, measure the amount of water left in each saucer, record the amount in the data table.
 | **MATERIALS Measuring Device**A place where saucers will get sunlight.WaterMeasuring cup2 identical saucersTenting material, such as thick paper, cardboard or aluminum foil |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **DATA TABLE:** **Amount of Sunlight vs. Amount of Evaporation**

|  |  |  |
| --- | --- | --- |
| Amount of Sunlight (covered or not covered) | Date/TimeAmount Difference | Amount of Water (cups) |
| T1 | T2 | Average |
| Lots of Sunlight: Saucer with no cover | Beginning Date/Time |  |  |  |
| EndingDate/Time |  |  |  |
| Beginning - Ending |  |  |  |
| Little to No Sunlight: Saucer with cover | Beginning Date/Time |  |  |  |
| EndingDate/Time |  |  |  |
| Beginning - Ending |  |  |  |

 |

Draw and label your experiment:

Reflections

1. How much water remained in each saucer?
2. Based on the outcome of your experiment, would you conclude that water evaporates faster in the sun or in the shade?
3. How is heat transferred from the sun to the Earth? How did you use this fact in the design of your experiment?
4. If you had compared the temperature of the water remaining in each saucer at the end of the experiment, which saucer do you think would have had water with the higher temperature?
5. Which do you predict would evaporate more quickly after a rain, a puddle in an open field, or a puddle on a trail in the woods? Explain your answer.