

Experimental Design

Princeton University Invitational 2017

Team Name: _____

Team Number: _____

Individual Names: _____

Topic: Design and conduct an experiment regarding the concept of **diffusion**. Diffusion is the action of molecules moving from an area of high concentration to an area of lower concentration.

Supplied Materials:

- Unlimited water
- 3 beakers
- 1 graduated cylinder
- Salt
- Maple syrup
- Disposable pipette
- Spatula
- Unlimited supply of printer paper
- Food coloring
- Hot plate
- Stirring rod
- Ice/ice water
- Balance
- Paper Towels

Rubric (100 points possible):

- Statement of Problem (4)
- Hypothesis (8)
- Variables
 - Independent (6)
 - Dependent (6)
 - Controlled (8)
- Experimental Control (4)
- Materials (6)
- Procedure, including diagrams (12)
- Qualitative Observations (8)
- Graph (12)
- Statistics (6)
- Analysis (8)
- Sources of Error (6)
- Conclusion (8)
- Further Experimentation (8)

Notes for Experimentation

- If more salt is needed, ask a proctor.
- Maple syrup is available at the central table.
- Water supply is available through the sink near the door.
- Use printer paper for write up. If you need more, take from central table.
- Tie breaker: time of submission

Notes for Clean-up:

- Clean-up must be finished within the allotted 50 minutes.
- Do not throw away the plastic cup or use it in your experimentation.