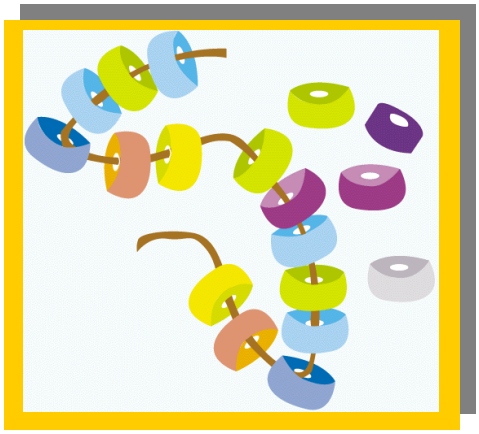
Dynamic Design: A Collection Process

Modeling Solar Wind Collection: Better Beads

STUDENT ACTIVITY-PART 2

In this activity, you will model the collection process. The beads will represent the collection wafers and solar wind. The beads representing wafer materials will be taped onto a background. Solar wind beads will be thrown against the wafer. After some time under the black light, the beads will change color. You will discover what elements and isotopes were obtained and problems that may result in the collection process.



PROCEDURE:

1. Obtain several beads, wafer hexagon, and double-sided tape from your teacher.
2. Trace the hexagon pattern from this student activity onto a sheet of paper. Cut and apply the tape to the hexagon and place the beads on the hexagon.
3. Place your wafer (hexagon) with beads next to the wafers from the rest of the class' wafers to form a mini-collector array.
4. Take several other beads from the “solar wind” container and throw them at the collector array.
5. Take your collector wafer to the ultraviolet light station. The ultraviolet light will allow you to see some of the solar wind particles. Note that there are some contaminants located on some of the wafers. Record qualitative observations in the results box below.

Safety Note:

Do not look directly at the black light. UV exposure can cause eye and skin damage.

Results:

Drawing of wafer beads under blacklight for step 5:

Questions:

1. Were there any surprises? Did some materials **collect** solar wind better than others?

2. Explain your answer to Question 1.

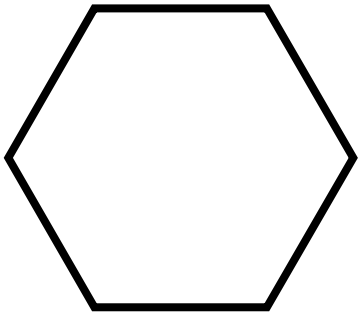
3. In what ways is this model similar to the actual Genesis mission solar collectors?

4. In what ways is the model different than the actual Genesis mission solar collectors?

5. What were some of the problems you encountered when trying to detect the beads that were embedded into the wafer?

6. How would you solve some of these problems?

Trace the hexagon below. Onto a sheet of paper, glue or use two-way tape to place the beads representing the material you chose for your wafer.



Background hexagon