Potato Obstacle Course

Standards of Learning
Science: LS.1, LS.4

Objective
The student will be able to:
- Conduct scientific investigations
- Investigate basic plant needs to complete life processes

Materials
- shoebox with lid
- seed potatoes
- cardboard
- tape
- knife
- scissors

Background Knowledge
The part of the potato plant we eat is called the tuber, which is an underground stem. Each plant produces multiple tubers. Most potato tubers are white or red however newer varieties include blue, purple, and speckled. Potatoes have buds or small node like indentions called eyes. When placed in a warm location sprouts will develop. The sprouts seek light and are the beginnings of a new plant.

Potatoes are grown predominantly in the tidewater region of Virginia. Varieties of white and red skinned potatoes are popular including Kennebec and Cherry Red. The crop begins with seed potatoes being cut into sections with at least one eye in each section. Small potatoes the size of an egg or less may be left whole. The stem emerges from the eye. Ideal planting times for potatoes in the Commonwealth are from mid March to early April. Virginia potatoes are sold fresh, bagged, or chipped.

Phototropism is the growth of a plant toward a light source. Plants are uniquely equipped to bend toward the direction of the light. A hormone in the plant stem causes it to seek out light which is generally upwards. Plant stems seek out light in order to start the process of photosynthesis.

Procedure
1. Cut a ½ inch hole in one end of a shoebox.
2. Create an obstacle course by cutting pieces of cardboard to create a maze within the box for the tuber to move through.
3. Put a sprouting potato on the opposite end of the box from the hole.
4. Securely attach the box lid eliminating light from any source other than the hole.
5. Place shoebox in well lit area of the room.
6. Keep a record of observations outside of the box. How many days until you see a sprout growing out of the hole in the box?
7. Discuss findings.

Extension

- Have students follow the scientific method creating a hypothesis, lab write up, observation charts, written summary and conclusion.
- Change one variable in the experiment such as potato variety, box size, or light amount.

References

http://www.hort.purdue.edu/ext/senior/vegetabl/potato1.htm
http://www.scienceclarified.com/Oi-Ph/Phototropism.html
http://www.ipmcenters.org/CropProfiles/docs/VApotato.html
http://www.gardencityseeds.net/growers10.php