TEACHER MATERIALS - Potatoes and Potato Stamps

CONCEPTS:

Social Studies	- technology (economic pp. 56, 58) - interdependence (economic pp. 56, 58, 62) - scarcity (economic p. 58) - culture (economic p. 60) - empathy (economic p. 62)
Reading	- comprehension - vocabulary
Life Science	- 1A - 1.3, 1.4

OBJECTIVES: At the end of this unit, the student will:

1. Describe where potatoes come from.
2. Outline how potatoes are grown.
3. List foods made from potatoes.

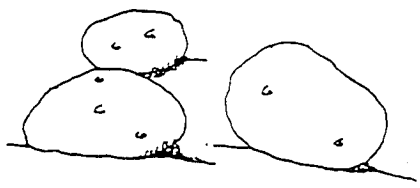
BACKGROUND: Most of our commercially grown vegetables and grain crops are grown from seed. Potatoes are one of the few exceptions to this. The potato--itself, or a section of it--is planted.

Potatoes are one of the most popular foods in the world. Surprisingly, China is one of the world's leading potato producers. These activities only begin to cover the wide variety of information about potatoes.

ACTIVITIES:

1. Have the students read pages 20 through 28 in "Great Pumpkins."
2. Ask the students to write sentences answering:

   A. How do potatoes grow?



or complete:

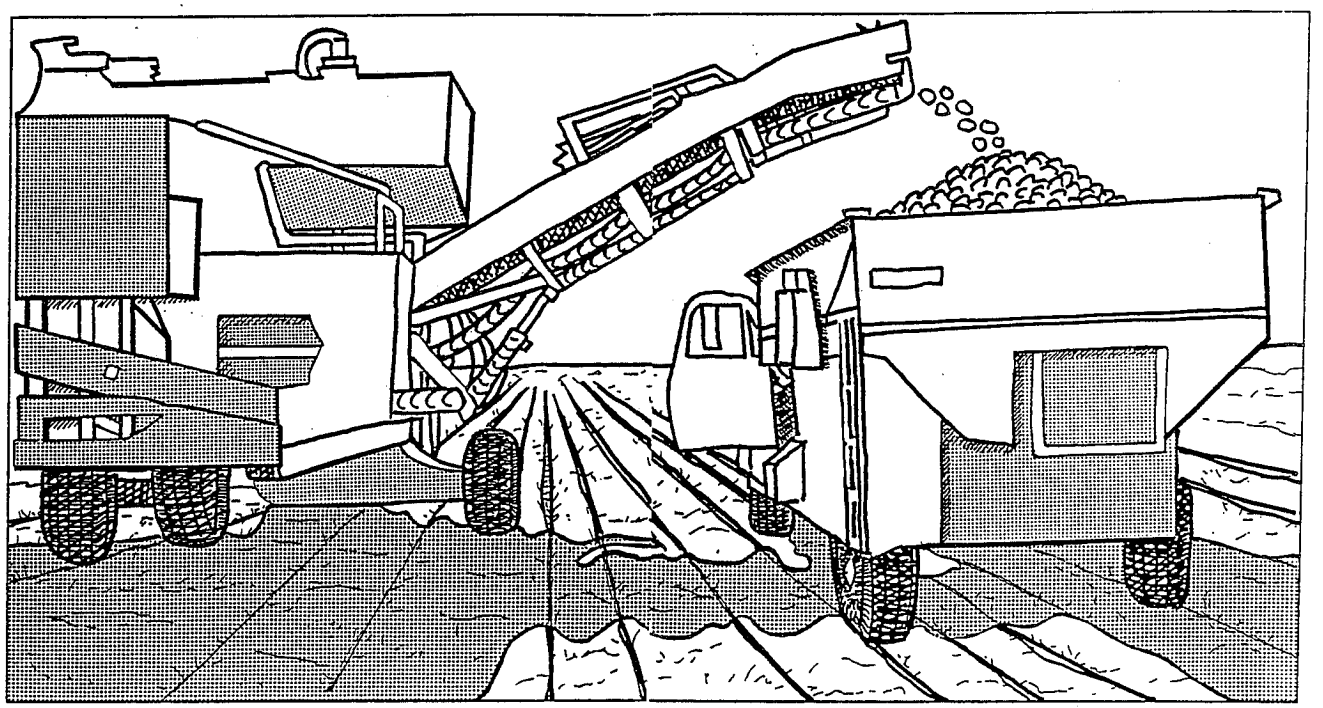
B. Potato chips are .....

C. My favorite potato food is .....

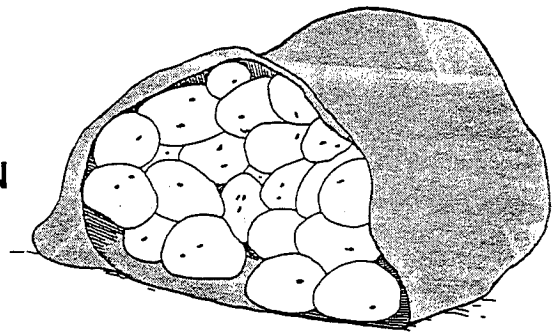
3. Have the students complete the potato math question on page 28 of "Great Pumpkins."

4. Have the students make potato stamps and make their own printed paper following the directions given.

5. Survey the class to determine how the students eat potatoes. As with tomatoes and rice there may be some differences in the form of consumption due to different nationalities, races, or religious affiliations. It is doubtful that students may not eat potatoes at all.



INFORMATION

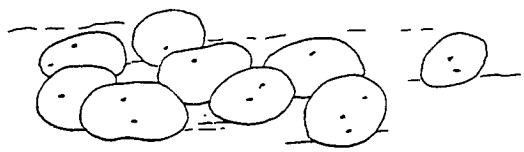


HISTORY

Potatoes (both sweet and white) originated in South America. When Spanish explorers arrived in what is today called Peru in the 16th Century, the Incans were growing and eating a vast array of foods made from potatoes. On their irrigated mountainside terraces, over 70 species of crops were grown. The conquistadors destroyed most of this production and forced the Incans to grow the European crops familiar to the Spanish. The potato and lima bean were two exceptions. The Spanish and other explorers introduced the potato to Europe in the late 16th or early 17th century.

The potato is a member of the solanaceae family. Many of its family members are poisonous to the point of being deadly. Deadly nightshade (Belladonna) was one of this group with which the Europeans were acquainted. Therefore, it was many years before this food was adopted. Once it gained acceptance, it was perhaps overused. Countries such as Ireland saw great population growth once this food was plentiful.

A fungal blight on the "Irish" potato and over dependence on potatoes coupled with English exportation of other foodstuffs from Ireland, spelled disaster in the name of the Irish Potato Famine. Between 1845 and 1847 over 750,000 people died in Ireland of starvation and its resulting disease. Settlers moving from Europe to the North American continent brought potato tubers with them. The South American crop made the complete returning circle to the Americas.



TODAY

Today, growers produce 290 million tons of potatoes each year. The Soviet Union grows one third of the world's crop. Poland, the United States, and China are also top potato producers. The United States processes potatoes into a greater variety of foods than anywhere else in the world.

Tomatoes, peppers, eggplant, and tobacco are also in the solanaceae family. While we eat the fruit of the tomato, pepper and eggplant and use

the leaves of tobacco, it is the tuber of the potato which we find so useful. Even if you grow potatoes in your garden, it is unlikely that you have seen a potato's fruit. Most of today's cultivated varieties do not produce fruit or seed. The seed is, however, used for breeding purposes.

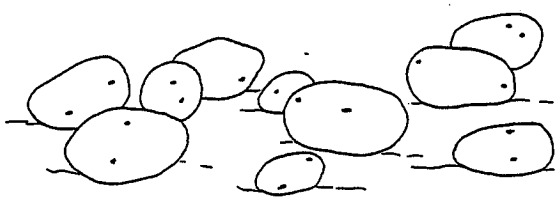
Potato tuber sections (misnamed seed potatoes) are planted by large mechanical planters which plant several rows at a time. New plants grow (sprout) from the eyes of a potato. You may have seen these sprouts form from potatoes in storage.

Once the plants emerge, they are constantly tended. Large machines cultivate and spray the rows of plants to defer weeds, "hill up" the potatoes, control insect damage and disease. Hilling protects the underground parts of the plants. Modern pesticides now control problems, such as late blight, which led to the Irish Potato Famine.

As the potato grows and matures, the energy it absorbs from sunlight is stored underground in its tubers in the form of starch. These tubers develop from 5 to 6 weeks after planting. At this time, it is important to shield the tubers from sunlight. If exposed to light, the tubers become green and bitter. This is why potatoes come in bags shielded from light.

The tubers are dug by machine usually after the foliage dies in the fall. The potatoes are sorted, graded, and then shipped or stored between 40 to 50°F. This storage can last up to one year. Fifty percent of United States potatoes are processed; the rest are sold fresh.

Here in New York most of our potatoes are chipped (made into potato chips.)



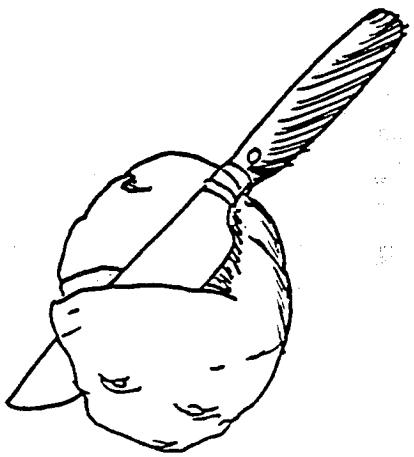
POTATO STAMPS

MATERIALS:

1/2 small potato per student
dull knife (butter knife or plastic knife)
pencil
paper
stamp pads (one for 3 to 4 children)

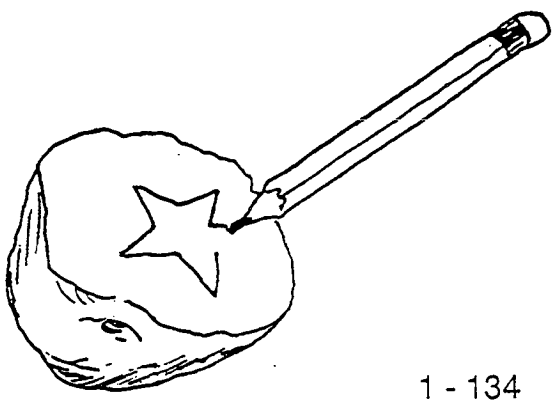
ACTIVITIES:

1. Cut small potatoes in half. Give each student one half.

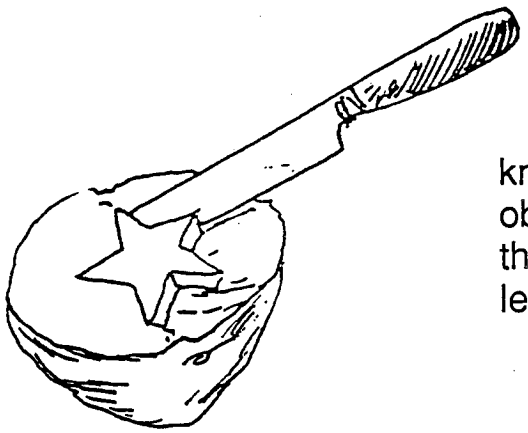


2. On the cut side, have the students draw a simple design -- stars, bells, trees, moons, etc. The pencil will not write well but use it to 'dig into' the potato slightly.

3. Have the students use the dull knife to trace the outside of the design about 1/2 to 3/4 inch deep. Make sure it is only the outside and that the center of the design is totally intact. This is the printing surface.

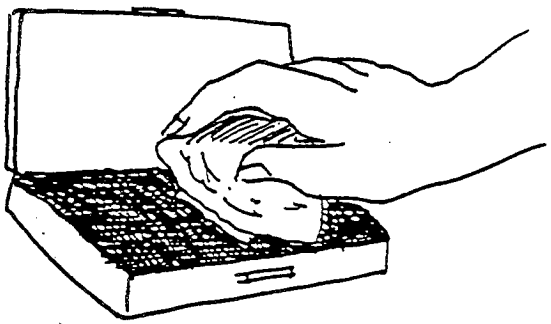


4. Have the students carefully dig away the excess potato with the



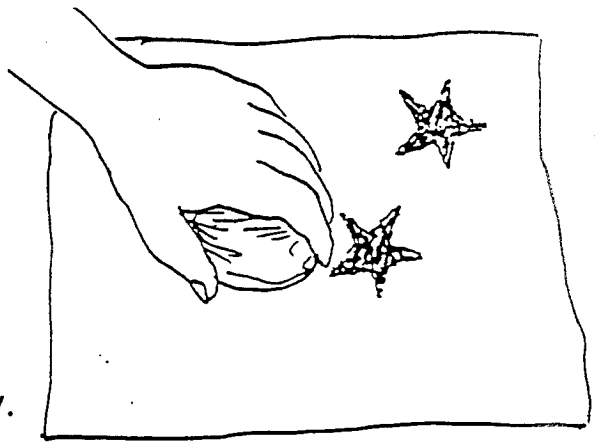
knife on the outside of the object they drew so that the object is raised at least 1/2 inch.

5. Have students turn over the new stamp, press it on the ink pad and print with it.



6. Students can "manufacture" their own printed stationary, wrapping paper, print a border, or make a cartoon.

7. If it is too difficult for the students to cut out the potatoes, make up 5 or 6 yourself and have the students just do the printing portion. This is a great way to make wrapping paper.



8. Use the stamps quickly.

9. Point out to the students that their tools are covered with a white powder. This is the starch stored in the tuber.