TOPS AIM Community Garden
Lesson - Planting Potatoes

Getting Started with Potato Fun Facts-

Share these fun facts with the kids. Let them know you are going to play a fun review game to see who remembers the most of the facts.

- Did you know that the Indians in Peru were the first people to cultivate the potato over 4000 years ago? The Andean Mountains of South America is the birthplace of the "Irish" white potato. The Symara Indians developed over two hundred varieties at elevations of over 10,000 feet over sea level.
- The potato, a name derived from the American Indian word "Batata", was introduced to Europeans be Spanish conquerors during th elate 16th Century.
- The Spanish claim that Gonzalo Jimenez de Quesada was the first to introduce the potato to Europe in the year 1550. The Irish say that it was nut until 1585 that Sir Walter Raleigh introduced the potato to Europe.
- At first, potatoes were not initially accepted by Europeans. Some claimed potatoes were not mentioned in the bible, while others attributed some common diseases to potatoes.
- Potatoes first became popular when Marie Antoinette paraded in France wearing a crown of potato blossoms. In the late 1700's Frederick the Great planted potatoes in his Pleasure Garden in Berlin. He admired the beauty of the potato flowers. King Frederick the Great promoted the eating of potatoes because of its high nutritional value.
- Captain Nathaniel Butler, Governor of Bermuda sent a cargo of potatoes to Francis Wyatt, governor of Virginia in 1621. This is the first time potatoes arrived in North America.
- In 1770 a crop failure gave a war its name - "The Potato War" when a war between Frederick the Great and Maria Theresa forced soldiers to steal the enemy's potatoes as there was not much more food to eat. When the potatoes were finished, so did the war.
- In 1845 and 1846 the potato crop in Ireland was devastated by fungus. The potato had become a major food to the Irish causing the "Irish Potato Famine" which cased many Irish to immigrate. The population of Ireland decreased by nearly two million between 1847 and 1851.-
- The potato is now a very common food item worldwide. In the United States, potatoes are grown in all 50 states and in about 125 countries worldwide.
- A potato is about 80% water and 20% solid.
- Henry Spalding first planted potatoes in Idaho in 1837 - The IDAHO SPUD
- "French Fries" were introduced to America when Thomas Jefferson served them at a Whitehouse dinner.
- United States potato lovers consumed more than 4 million tons of French Fries in various shapes and sizes.
- The average American eats 140 pounds of potatoes per year. Germans eat more than 200 pounds per year.
- The largest potato grown was 18 pounds and 4 ounces according to the Guinness Book of World Records. It was grown in England in 1795.
- The highest volume baked potato restaurant, The Hot Potato, is located in Plaza las Americas in San Juan, Puerto Rico.

- Potatoes can be red, yellow, purple, white, or brown in color.. Potatoes contain 620 mg of potassium, which is more than is in the average banana.
- Potatoes contain no cholesterol and very little sodium.
- Potato skin contains natural fiber.
- The average potato contains about 110 calories.
- The average potato is fat-free.
- Cooking a potato in its skin helps it retain its nutrients and makes it easier to prepare.
- Potatoes have trace amounts of thiamine, riboflavin, folate, magnesium, phosphorous, iron and zinc.
- Potatoes contain the same amount of protein found in a half a glass of milk.
- Potatoes can be eaten boiled, mashed, pureed, steamed, roasted, fried, and as part of a salad.
- **National Potato Chip Day- March 14th**

Review- Ask students to see how many of these fun facts as a group they can remember when you finish sharing them.

Growing Potatoes

Growing potatoes with kids can be a revelation. But potatoes don't look like seeds they are much more mysterious." 'But – that just looks like an ordinary potato!', said one. Ahh, that's because it is an ordinary potato and it's not going to grow quite how you expect!"

Growing potatoes with children

You can plant potatoes, depending on the variety and where in the world you are, between February and the end of May, for harvesting between May and October. Choose between small salad potatoes and big baking potatoes or try something a little different such as red Rooster or Purple Majesty.

We always chit our potatoes to get them started. This means sitting the seed potatoes in the daylight until the eyes begin to sprout leaves. This was the first surprise for the kids, who are used to every seed sending out roots first. And no other plant has been started by sitting them in an egg box on the window sill.

Then the potatoes are placed in soil near the bottom of a deep container. You can of course plant them straight out in the soil in your yard but we like to grow ours in containers – a big bucket or trash can is ideal – which makes them easier to earth up. And that's the next thing that the kids didn't expect, because once the potatoes start growing you need to bury all the leaves in lots more soil, completely covering the plant and encouraging it to grow up and up and up some more. Growing in a container also makes it easier to gather all the potatoes which will grow off the plants tall shoots as you can just tip over the bucket when you're ready to harvest and pick out your crop.

Can you eat the Green?

Watching science in action

To help the children better understand what's going on with the potato plants, why not use one of the seed potatoes for a science observation experiment? Take a tall plastic bottle and make some drainage holes in the bottom. Use this as your potato planter, placing your potato at the bottom and filling the bottle with more soil as the potato grows. Using this clear plastic container gives you a window under the ground, so your children can observe close-up how the potato grows a new crop. Just be aware that the potatoes in this container are for the science experiment only – being exposed to the daylight can cause green patches to appear on the potatoes making them inedible.

Green = vegetables = good, right?

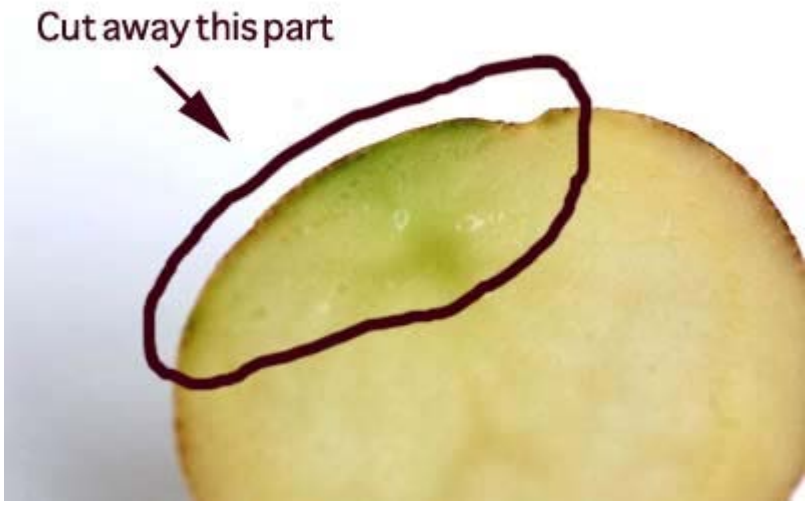
Not when it comes to potatoes.

Here's an important piece of information that my mother taught me years ago, but fewer and fewer people these days seem to know about. Green in potatoes indicates the presence of a rather harmful toxin. When you see patches of green in your potatoes as you peel them, cut out the green parts entirely and discard them.

What is the green? Actually it's chlorophyll. Not bad for you at all. But the chlorophyll indicates that the potato has been exposed to sunlight. And where the potato has been exposed to light is where a natural toxin in the potato (solanine) becomes concentrated at harmful levels. So, never store your potatoes on the counter. Always keep them in a cool, completely dark place.

Solanine is a natural defense mechanism of the potato to ward off fungus and pests. It will also be triggered when a potato is bruised, so if your potato is at all damaged or bruised, discard it.

According to the Wikipedia, deep-frying potatoes at a high temperature (306°F) effectively lowers the level of toxins. But boiling them (212°F) has no effect. Best to stay on the safe side and just cut away the green parts. The NIH website mentions that the potato sprouts can also have concentrated solanine, so those too should never be eaten.



How to Prepare Seed Potatoes

When you decide to plant potatoes it is best to **start with potatoes that are specifically made for planting and growing potato plants**. They should also be organic (in my opinion). Sure the ones that you get in the grocery store may sprout and may actually grow, but there is no way to know that they will grow "true to form" or that they haven't been treated with some yucky chemical.

A lot of seasoned farmers will recommend **"chitting" your potatoes**. Mine came "pre-chitted" (I think I just made that term up) because they were already sprouted when I took them out of the bag. Seed potatoes stored at 40 degrees will not sprout but will remain dormant. By moving the seed potatoes to an area of 60 degrees and slightly humid, you'll find that the eyes start to sprout. This will help speed up the growing process.

Some seed potatoes **you will want to cut** into smaller pieces. I planted mostly red potatoes and most of the seed potatoes were relatively small. However, if your potato is more than an inch and a half in diameter or so, you'll want to cut it. When you cut it, make sure that you leave at least one eye per piece of potato. Each piece should be about 1-1 1/2 inches across. After you cut the potato, you'll want to be sure to let it sit to "crust over" on the parts that you cut. I've read varying advice about this. Some say to leave it for 24-48 hours, some say 10-14 days. I suppose it depends on how humid your conditions are. The reason you are doing this is to prevent the potato from rotting in the ground before it has a chance to grow.

A couple of days before planting in the field, cut the potatoes into one to two inch pieces — these are your seeds. Each piece should contain two to three eyes or buds. Place these pieces in a bright and well-ventilated spot to cure them.

Plant the potato pieces or seeds in the furrow one to two inches deep and 10-12 inches apart. Each row should be three feet apart. Pull a ridge of soil over each row.

Potatoes can also be grown in mounds. To do so, loosen soil in a three- to four-foot diameter circle. Place six to eight seed potato pieces inside this circle and cover with one to two inches of soil. Regardless of planting method, continue to cover the tubers with soil as they grow. Once the tops of the plants have top growth, throw soil over the potato plant to help prevent exposure to the sun.

Make sure your potato crop receives plenty of water while growing. The most critical time for watering is when the potato is flowering and immediately after bloom. You do not have to worry about irrigating once the foliage turns yellow and dies back. This will allow the tubers time to mature in the ground for a week or two.

For new potatoes, loosen the soil around the plant and harvest at flowering. For mature potatoes, harvest them when the foliage turns yellow and begins to die back. Make sure and dig them prior to frost. Potatoes are best stored at 40 degrees, in the dark.

Flying Potato

We have this for you to do with the kids. You can figure out which of them if the best launcher. They love this.

http://www.stevespanglerscience.com/potato-gun-launcher-952.html

Nothing's more fun than pushing around a potato.

You just cannot have much more fun than with a potato pusher, a 14 pound sack of spuds, and a big group of kids. Be careful, you might even teach some science along the way! **Please note that this is not a toy, but the demonstration is safe (and very cool!) when performed by and under the supervision of a responsible adult.**

This version of the potato pusher was inspired by the Weird Science team out of Illinois. It's made out of high quality extruded acrylic tubing that will last a long time provided that it is cared for properly. Before delving into the instructions, it's important to take a moment to consider several safety factors:

1. Perform the demonstration outside or in a large room.
2. Warn members of the audience that a projectile potato might be coming their way.
3. Wear safety glasses.
4. Use care when handling the flared end of the tube as the edges may be sharp.

Materials

- This experiment write-up pertains specifically to the clear plastic version of the potato pusher sold by Steve Spangler Science.
- Potatoes

READ THIS! This science demonstration only uses the power of compressed air to demonstrate Boyle's Law... unlike other versions which use flammable liquids to create an explosion to launch the potato - this is NOT recommended!

1. There are two parts to the potato launcher - the plunger and the tube. Let's start with the plunger. Notice the rubber stopper attached at one end of the rod. Slide the stopper up so that it is approximately 5 inches from the end. This is where you will hold onto the plunger.

2. You'll also notice that both ends of the clear tube have been flared. Use care as the ends of the tube can be sharp or have rough edges.

3. Let's not forget about the potato. Place the potato on a flat surface. Hold the potato securely with one hand while pushing the tube through the potato with the other hand. Pull the tube out of the potato to see your "potato plug".

4. Use the plunger (rod) to move the piece of potato to the other end of the tube (actually a few inches from the other end). This is a little tricky until you get the hang of it. Always keep your pushing hand behind the rubber stopper to keep the sharp edge of the tube from hurting your hand.

5. The reason for moving the potato plug is to free up the end to accept another piece of potato. Position the potato securely on a flat surface while pushing the tube into the potato. Now both ends of the potato are plugged!

6. Assuming that you're right handed, hold the clear plastic tube in the middle with your left hand and the plunger in your right hand. The plunger goes into the end where the potato is a few inches from the end of the tube. Push upwards on the bottom piece of potato with the plunger until the top potato piece pops out of the tube. POW! Notice that the rubber stopper keeps the plastic rod from pushing both pieces of potato out of the tube (pretty cool design!) If adjusted properly, the bottom potato should now be positioned a few inches from the top of the tube, and the bottom end of the tube is ready to accept another unsuspecting piece of potato.

7. It takes the average potato-launching-science-enthusiast about 30 launches before feeling completely confident about the mission. Never aim the flying potato at anyone. It's always best to do this demo outside... away from all forms of life. Remember, this is a science demonstration... not a bombing mission. Use caution when demonstrating your newly acquired skill.

8. When you are finished, wash and rinse the tubing with mild soap and water.

How does it work?

The Potato Pusher is an excellent demonstration of the Boyle Law, the Kinetic Theory of Gases, and Newton's Laws of Motion. The potato pusher beautifully illustrates *Boyle's Law* which states that pressure and volume are inversely proportional. In other words, as you decrease the volume of the air trapped in between the two pieces of potato, the pressure exerted by the gas increases. This increase in pressure eventually forces the top end potato to exit the tube with great pizazz!

FAQ: Is this safe for children?
The potato gun requires adult supervision. You are essentially firing 2 inch (5 cm) long potato pieces through the air and whenever anything flies with some velocity, there is always the danger that someone may get hurt.

Lesson Summary

1. Share fun facts about potatoes.
2. See how many the kids can remember through a review game
3. Show them the potatoes and see if they know how they grow.
4. Start one in the plastic bottle for student observation.
5. Explain green potatoes are NOT good for you.
6. Prep potatoes for planting in a few days.
7. Then do the potato launchers. This should all take roughly about an hour and 15 minutes.