

## **Sprout Lapbook: Growing Sprouts for Science**

Grow and eat your lessons right at home.

### **Lesson:** Kids Lesson

Free Bean seed anatomy lesson:

[http://www.growingyourfuture.com/lessonPlans/pdf/grade\\_4\\_5/science/AnatomyOf-BeanSeed.pdf](http://www.growingyourfuture.com/lessonPlans/pdf/grade_4_5/science/AnatomyOf-BeanSeed.pdf)

### **Direction:**

Starting material:

1. Start Soaking 3 kidney beans. (Place three kidney beans in a bowl and cover them with water.)
2. Lapbook Base Folders: One lapbook for every person.
  - a. Open up two manila folders (with the same tab positioning).
  - b. Fold the sides of one manila folder so that the tabs meet in the center
  - c. Repeat with the other folder and open them up again.
  - d. Lay the folders on top of each other and line them up so that the folds are all folding in to the center.
  - e. Staple them at the bottom center (not on the flaps). Staple them at each corner in the crease of the folds. If they are too far into the pocket the papers won't fit.
3. Bean Dissection: After you are finished assembling the lapbook, the soaking beans should be moist enough to cut in half. Hold the bean so that the hilum is up towards you and cut the bean in half along the long side of the bean. You should be able to see the embryo and other parts of the seed.
4. Sprout some seeds and beans. (directions below)

### **Materials:**

Bean Dissections: bowl, 3 beans, sharp knife and cutting board

Sprouting: quart mason jar, cheese cloth, rubber band

Lapbook: Print out the lapbook, 4-5 pieces of colored paper, glue sticks, stapler, scissors, At least 2 piece 2 of colored Card stock, 2-3 recipe cards

### **Activities:**

Sprouting seeds and beans

**Materials:** Sprouting: quart mason jar, cheese cloth, rubber band

or- You can make your own sprout bags. You will find the directions at:

<http://www.missionmama.com/homemade-basics/homemade-sprout-bags/home-made-sprout-bags>

# Dinner is Growing in My Kitchen!

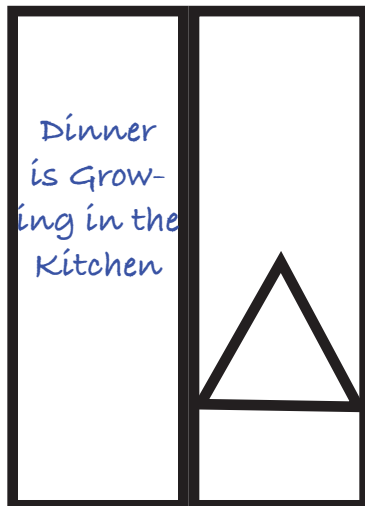


**Sprouts are:**  
**Baby plants that have**  
**just come out of the**  
**seed.**

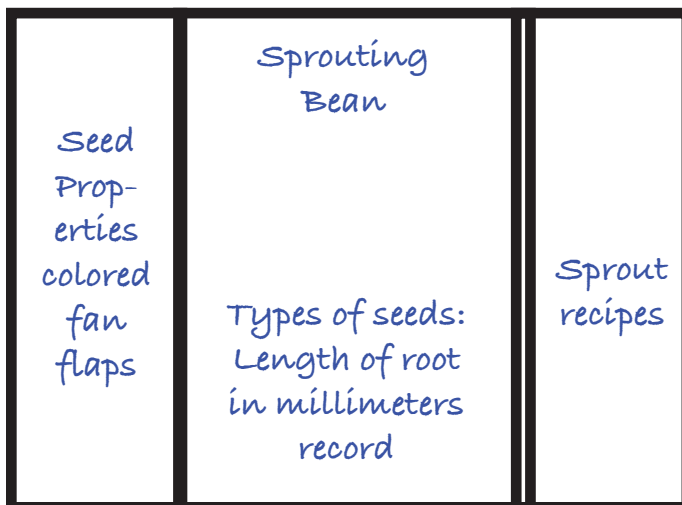
**Put the heading on top with a boarder**

**Make a Hamburger fold with green paper. The sprouts should be on the front and the "Sprouts are:" in the middle page**

**(You can cut the "Sprout are" horizontally and have them puzzle the pieces back in order in the hamburger**



Front

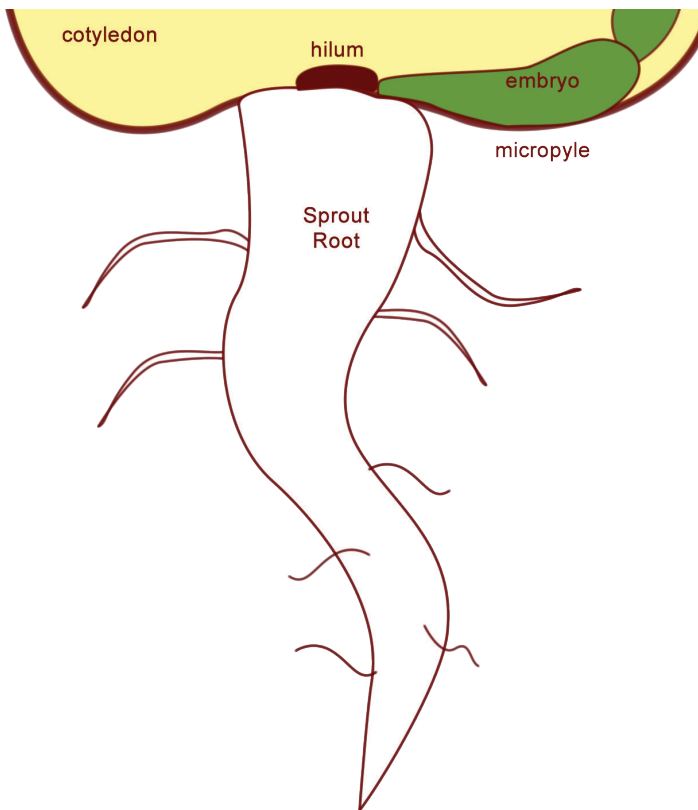
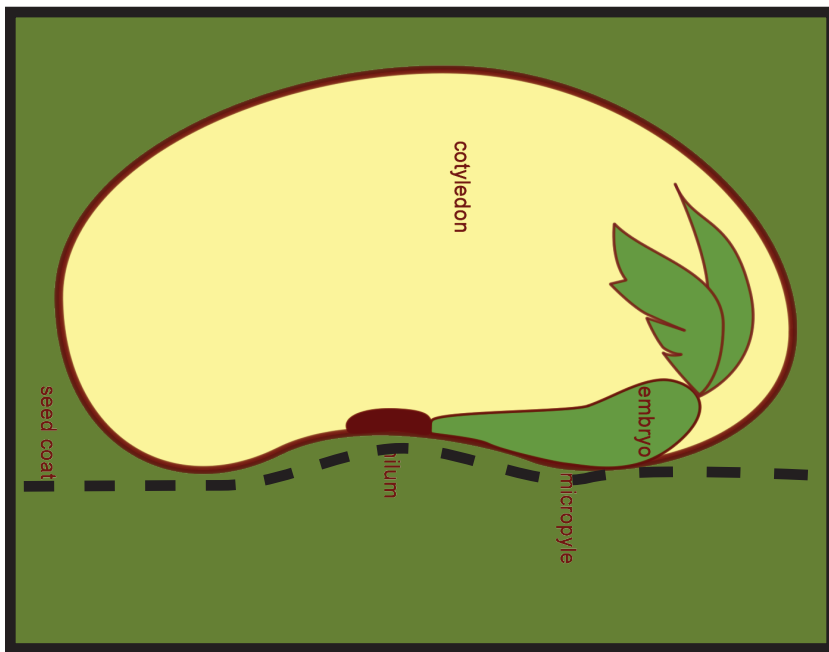


Inside  
folder,  
outside  
flaps

Days of Sprouting Bar Graph

### Days of Sprouting Bar Graph:

- 1. Cutout the "Days of Sprouting Bar Graph" on the dotted line.**
- 2. Shade in the recorded lengths of the sprout roots for each day. (if you use two different seeds/beans make two bars on each day in different colors.**
- 3. Glue the Days of Sprouting Bar graph on to another color of card stock paper.**
- 4. Lay the graph upside down and facing the sprouting bean.**
- 5. Staple the graph at the bottom to the bottom of the inside of the folder.**

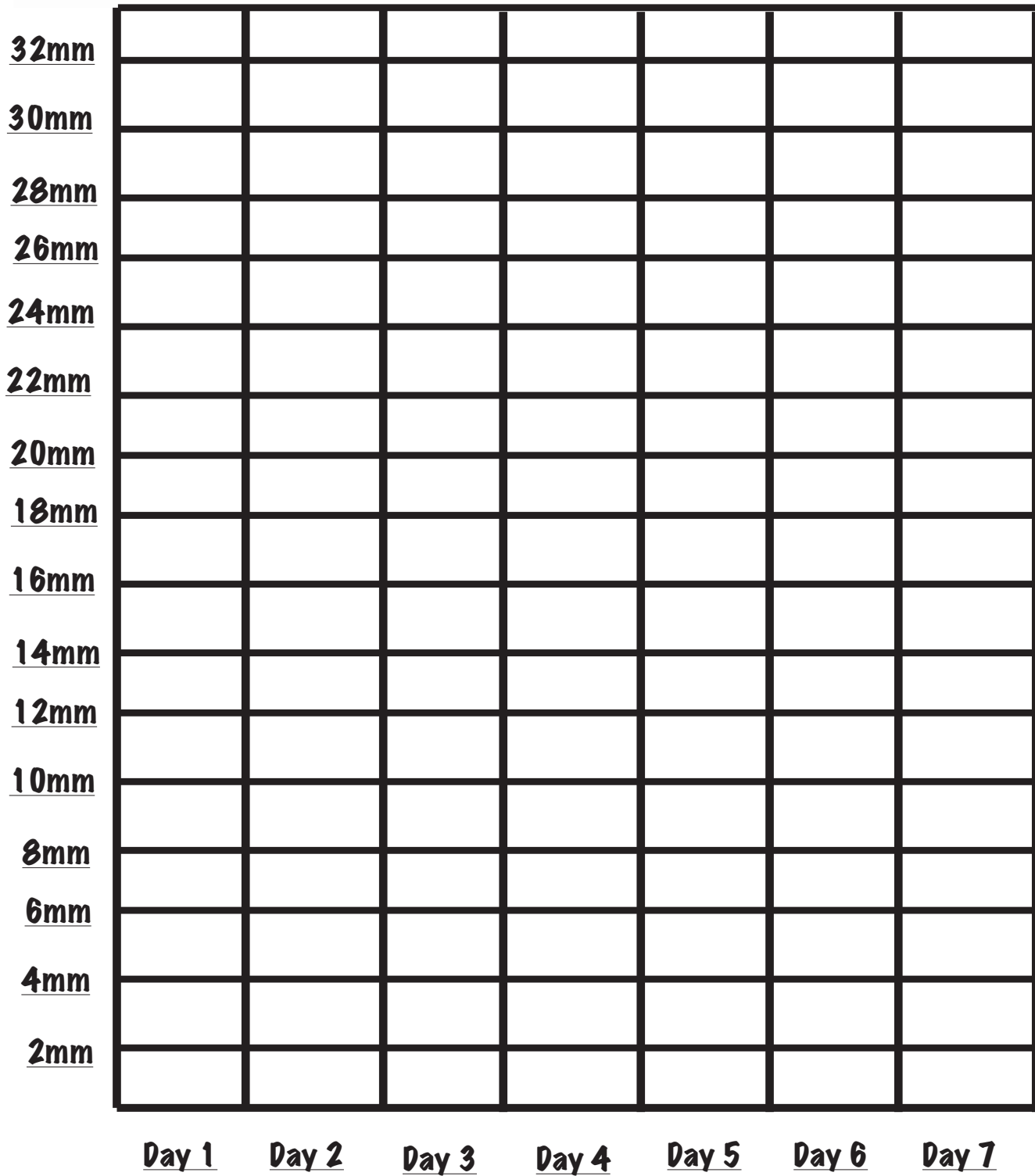


## Sprouting Bean

### Me Being Baptized

1. Cutout the bean, the sprout root and the title
  2. Glue the sprout root to a piece of card stock and cut around it. It must be thinner than the popsicle sticks.
  3. Glue one popsicle stick to the back bottom of the sprout root.
  4. Cut a piece of 8 1/2 x 7 inch piece of card stock
- Glue the title to the top center of the card stock. Glue the bean horizontally close to the bottom of the card stock.
5. Cut on the dotted line below the bean picture. (Be sure the cut line is not longer than the popsicle stick.)
  6. Stick the bottom of the sprouting root in the hole. Put glue on another popsicle stick and glue it to the back/ top of the sprouting root. The Sprouting root should look like it is growing out of the bean.

## Days of Sprouting Bar Graph



# How to Sprout your own Food:

- \*seeds or beans to sprout (organic)-get at health food store
- \*a one quart canning jar
- \* 6" x 6" piece of cheese cloth
- \*rubber band to secure cloth

1. Place 2 Tbsp of seeds in a jar. Different types of seeds should be in different jars.
2. Soak your beans in the refrigerator for 24 hours (refer to the chart for different beans)
3. Sprain and rinse seeds/beans and place into the jar. Secure cheese cloth over the mouth of the jar with a rubber band. (Look at [MissionMama.com](http://MissionMama.com) for sprout bag instructions)
4. The first day is day one. Record how long the roots are in millimeters for each day. When they are twice as long as the seed, in general you are done. Be sure to read

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## Type of seeds:

Day one:

Day Two:

Day Three:

Day Four:

Day Five:

Day Six:

Day Seven:

Day Eight:

**Directions: Cut out the triangle and glue it to a piece of colored paper. Cut around the dotted line again with no showing on the edge.**

**Fold the flaps in toward the writing on the dashed lines.**

**On the color side, glue the correct answers. (closest ones to the verse. Be sure the labels are all right side up with the direction you will put the triangle.)**

**Cut out the heading add a boarder of the same colored paper. Place it under the duck on the front flap.**

Micropyle: This is the small hole that allows water to come into the seed.

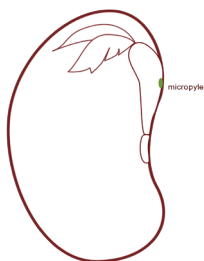
cotyledon: This part is feeds the little sprout while it is breaking out of it's shell and growing towards the sun-light.

Embryo: The embryo is the baby plant.

Hilum: The hilum is the were the seed attached to the big plant.



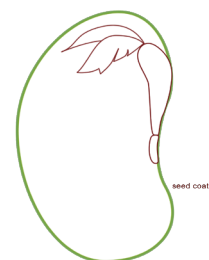
cotyledon



Micropyle



Hilum



Seed Coat: The out side shell of the bean

**The Bean Seed**

Back

## Types of Sprouts

Buckwheat

Mung Beans

Alfalfa



**Buckwheat**

**Days to harvest:** 1-2  
**Flavor:** mild and slimy when soaked, rinse well  
**Nutrition:** complete protein,(8 amino acids), all B vit.  
**Health:** lecithin for cholesterol balance and brain food, rutin to reinforce weak veins  
**Uses:** Breads, salads  
**Caution:** do not let the sprouts green. The greens could be toxic.

**Mung beans**

**Days to Harvest:** 3-6  
**Flavor:** Crunchy and mild  
**Nutrition:** 20% Protein, iron, Calcium, vit. C  
**Health:** High in fiber and protein  
**Uses:** Salads,sandwiches, sprout bread

**Alfalfa**

**Days to Harvest:** 4-6  
(Place in light for the last 2 day)  
**Flavor:** mild  
**Nutrition:** A,B,C,E, and K, trace minerals, calcium and iron.  
**Health:** 450% higher in Saponins for cholesterol control  
**Uses:** Salads, sandwiches, and soup topper \* created a very large amount of sprouts compared to seed size

Broccoli

Almond

Cashews



# Seed Properties

1. Print off the front and back of the seed properties sheets. Fold in hamburger folds. Put the title at the front bottom and the description in the middle.
2. Or print this one sheet and cut and paste them on to hamburger folded colored paper.

## Almonds

**Days to Harvest:** 1-2 days  
**Flavor:** mild and creamy  
**Nutrition:** 40% of RDA Vit. E, high protein, high fiber  
**Health:** Glucoaphanin 20% higher f65% of monounsaturated fat found olive oil to lower cholesterol  
**Uses:** Salads, milks, cheeses and spreads

## Almonds

## Broccoli

**Soak:** 2 hours  
**Days to Harvest:** 3, till green  
**Flavor:** strong broccoli  
**Nutrition:** 35% protein, A, C, E  
**Health:** Glucoaphanin 20% higher for cancer fighting, 3.5 oz. sprouts/ day for lower cholesterol (Japan Institute), 50% more antioxidants  
**Uses:** Salads, sandwiches

## Broccoli

## Mung beans

**Days to Harvest:** 3-6  
**Flavor:** Crunchy and mild  
**Nutrition:** 20% Protein, iron, Calcium, vit. C  
**Health:** High in fiber and protein  
**Uses:** Salads, sandwiches, sprout bread

## Mung Beans

## Alfalfa

**Days to Harvest:** 4-6  
 (Place in light for the last 2 day)  
**Flavor:** mild  
**Nutrition:** A, B, C, E, and K, trace minerals, calcium and iron.  
**Health:** 450% higher in Saponins for cholesterol control  
**Uses:** Salads, sandwiches, and soup topper  
 \* created a very large amount of sprouts compared to seed size

## Alfalfa

## Cashews

**Days to Harvest:** 1-2 days  
**Flavor:** mild and creamy  
**Nutrition:** magnesium, protein, fiber  
**Health:** greatest amount of copper, an essential component for many enzyme activities.  
**Uses:** creams and desserts, milks, cheeses and spreads

## Cashews

## Buckwheat

**Days to harvest:** 1-2  
**Flavor:** mild and slimy when soaked, rinse well  
**Nutrition:** complete protein, (8 amino acids), all B vit.  
**Health:** lecithin for cholesterol balance and brain food, rutin to reinforce week veins  
**Uses:** Breads, salads  
**Caution:** do not let the sprouts green. The greens could be toxic.

## Buckwheat

## Sprout Recipe Cards

## Seed Properties

1. Make a pocket out of card stock that will fit the recipe cards
2. Glue or staple (of both) the sides and the bottom of the pocket to the right inside flap.
3. Glue the Title to the pocket.
4. Cut out the Recipe Cards

**PS.** The almond milk and power bars are also from sprouted seeds for more instruction go to: <http://www.missionmama.com/homemade-basics/almond-milk-and-power-bars/homemade-almond-milk>

### Coco-nut Ice Cream

The resulting master piece is a creamy chocolate ice cream that tastes like a candy bar. Yum.....

- Soak 1 cup raw cashews at least over night
- 1 can full fat organic coconut milk
- 1/2 cup agave
- 1/4 cup coconut oil
- 1 tsp vanilla
- 3 Tbsp Organic cocoa powder
- 1/4 tsp Sweet Leaf stevia powder

Blend all ingredients until smooth. Pour into an ice cream maker.  
Instructions: <http://www.missionmama.com/homemade-basics/chocolate-coconut-ice-cream/best-coconut-ice-cream-ever>

### Eastern Sprout Dressing:

- 1 tsp raw sugar
- 1/2 tsp oregano
- 1/2 tsp salt
- 1 tsp onion powder
- 1 tsp garlic powder
- 1 tsp chili powder
- 1/2 tsp ginger
- 1 tsp lemon juice
- 1 tsp Sesame seed oil
- 1 tsp apple cider vinegar
- 2 Tbsp water
- 2 Tbsp oil

Mix all of the ingredients together.

### Eastern Bean Sprout Salad:

- \*1 cup mung bean sprouts or a mix of different sprouts
- \*1/4 cup carrots (shredded)
- \*1 Tbsp cilantro, fresh
- \*Eastern Sprout Dressing to taste
- (It is also great with baked fish mixed into it.)

<http://www.missionmama.com/homemade-basics/sprouting-an-idea>

**You can have the kids copy the recipes on to index cards or just print them out on card stock**