

Summary Description

This is the fourth in a series of 11 lessons that introduces the student to Biology.

Learning Objectives

To have the student learn a few key facts about seeds.

Approximate Time for Lesson

40 minutes

Suggested Maturity Level for Instruction

Student should be able to read simple words and perform simple addition and subtraction. Also, student should be able to sit still and engage in one-on-one conversation.

References:

"From Seed to Plant" - The Educator's Reference Desk - <http://www.eduref.org/cgi-bin/printlessons.cgi/Virtual/Lessons/Science/Agriculture/AGR0010.html>

Materials Needed

1. Internet Access - Pull up the following:
 - a. Picture of parts of a seed (go to <http://www.bbc.co.uk/scotland/education/bitesize/standard/img/biology/bean-shoot.jpg>)
2. Two lima beans (one for Teacher and one for Student)
3. Bowl of water (to place the beans in)

Preparation

Make sure you have materials open, printed and/or available prior to beginning the lesson.

Script

Introduction (5 minutes)

1. Teacher: [\[Soak the lima beans in water for about 15 minutes - you will use them later on in this lesson\]](#) Ok. Last lesson we learned about cells. Can you tell me why cells are so important? [\[Engage the Student in conversation, but come to the point that cells are important because they are the building blocks to make all living things\]](#)
2. Teacher: That's right. Cells are important because without them, there would be no living things on this planet. Now today, we're going to learn about one kind of life form (which is the same thing as a living thing) called plants. I'm sure you've seen plants in your life, but we're going to talk about plants in detail from how they start out as seeds, how they grow into plants, to how they die and become part of the earth. So, are you ready to learn about plants? [\[Get positive response from Student and begin lesson\]](#)

Lesson (30 minutes)

1. Teacher: Great. Now, every plant starts from a seed. Think of seeds like baby plants that need the same things you do to grow – these seeds are something that plants make when they are all grown up. Here’s a picture that shows the 3 parts of a seed. [\[Show the picture of the parts of a seed\]](#)
2. Teacher: As you can see, the 3 parts of a seed are: [\[Point to each part of the seed using the picture of the parts of a seed\]](#) 1) the seed coat, 2) the food store, and 3) the embryo.
3. Teacher: Now, what do you think the seed coat is for? [\[Engage the Student in conversation but come to the point that the seed coat is to protect the seed from outside elements just like you wear a coat to keep you warm\]](#)
4. Teacher: So, the seed coat is to protect the seed. What do you think the food store is for? [\[Engage the Student in conversation but come to the point that the food store is actually food that the plant can consume before it can make food for itself\]](#)
5. Teacher: That’s right, the food store is there to provide all the food needed for the plant to eat before it can make food by itself. Think of the food store as baby food for the plant.
6. Teacher: Now, what do you think the embryo is for? [\[Engage the Student in conversation but come to the point that the embryo is the part that grows into the plant and roots\]](#)
7. Teacher: Right, the embryo will eventually grow into the plant and roots.
8. Teacher: Ok – now that you’ve looked at the parts of a seed in a picture, let’s see if you can tell me the parts of a seed by looking at a real seed.
9. Teacher: [\[Take both lima beans out of the water and give one to the Student\]](#) This is a lima bean. As you know we eat them. But did you know that beans are one kind of seed? And what we’re going to do is to use these lima beans to see the parts of a seed. Ready? [\[Get positive response from the Student and begin demonstration\]](#)
10. Teacher: Now, first thing we’re going to do is to carefully remove the seed coat using your fingers. Watch me do it first, then you try. [\[Carefully peel the seed coat off the bean\]](#)
11. Teacher: [\[Show the Student the seed coat\]](#) As you can see, it’s kind of like the skin for the seed. Why don’t you try to take off the seed coat from your seed? [\[Have the Student remove the seed coat\]](#)
12. Teacher: Good job. Now, let’s break the seed in half the long way, like this. [\[Carefully break the seed in half so each half looks like the picture of the part of the seed that you showed the Student – have the Student carefully break the seed in half\]](#)

13. Teacher: Great. Now, looking at one half of the seed, can you tell me where the food store is? [Have the Student show you the food store, which is the entire bean, except for the middle squiggly part, which is the embryo]
14. Teacher: Good job. Now, can you see the embryo? Where is the embryo in the seed? [Have the Student show you the embryo]
15. Teacher: Great job! You now know the parts of a seed.
16. Teacher: Now can you tell me how this seed actually grows into a plant? What do we need to do first? [Engage the Student in conversation but come to the point that you first need to put it in soil]
17. Teacher: So, the first thing we need to do with any seed is to make sure that it gets into the soil. Now, since we're people, we can just dig a little hole in soil and plant the seed. But do you know how seeds actually get into the soil in the wilderness, without our help? [Engage the Student in conversation but come to the point that there are two ways: 1) the wind and 2) other animals]
18. Teacher: So there are 2 ways that this seed gets into the soil. The first way is that the seed drops from the plant and is taken away by the wind. Hopefully, the seed can land somewhere that has lots of good soil and will start growing. The second way is when an animal eats the plant. Actually, animals eat the fruit from the plant, which has seeds in it. Can you give me examples of fruits with seeds in them? [Engage the Student in conversation]
19. Teacher: Those are all good examples of fruits. In fact, do you know how you can tell the difference between a fruit and a vegetable? Fruits all have seeds in them and vegetables don't. That's it! Pretty simple, huh?
20. Teacher: Now, like I was saying before, the animals eat the fruit, including the seeds. Then, when the animals have to uh...you know...go #2, hopefully, the seeds will drop onto some good soil so it can grow. I know it sounds funny, but animal poop is actually very good for seeds since it has lots of good nutrients that the seeds need to grow.
21. Teacher: Anyway, once the seeds get into the soil, the seeds need two more things to grow. Can you guess what they are? [Engage the Student in conversation but come to the point that seeds also need sunlight and water to grow]
22. Teacher: That's right, with the exception of a few plants, most all plants need sunlight and water to grow. In fact, you'll learn this later, but all living things need water to grow and survive. So, with some soil, water, and sunlight, a seed can grow into a plant.
23. Teacher: Oh wait, I almost forgot, there's one more thing that plants need to grow and it kind of has to do with what animals do, and that is breathing. Did you know that plants also need to breathe? They breathe the air, but they don't breathe the same thing that we

do. You see, animals need something in the air called oxygen to breathe. Plants, on the other hand, need something in the air called carbon dioxide. Can you say "carbon dioxide"? [Have the Student repeat the words]

24. Teacher: Good. Now, the great thing about how life works on our planet is how animals need things from plants and how plants need things from animals...like a giant trading environment. Well, this is also true for breathing. Plants, when they breathe turn carbon dioxide into oxygen. This oxygen is then used by animals for breathing. And guess what animals turn the oxygen into when they breathe? [Engage the Student in conversation but come to the point that animals turn oxygen into carbon dioxide, which is then used by the plants to breathe]
25. Teacher: So, every time you breathe out, you're creating breathable air for plants. And the plants breathe carbon dioxide that's made by the animals which is then made into oxygen that can be used by animals. This exchange goes back and forth forever.
26. Teacher: So plants are actually very important to us. Without plants, there will be less oxygen for us to breathe so we have to make sure that there are plenty of plants on our planet.
27. Teacher: Ok - now that we learned about seeds, it's time for review. Stand up and get in front of the class (consider inviting other members of the family also to set the stage). [Ask Student the following:
- a. What are the 3 parts of a seed called? Seed coat, food store, and embryo
 - b. What does the seed coat do for the seed? It protects the seed from outside elements
 - c. What does the food store do for the seed? It gives the plant food until the plant can make food on its own.
 - d. Can you name other things that seeds need to grow? Any one of the following: 1) soil, 2) sunlight, 3) water, and 4) carbon dioxide
 - e. Why is it so important that we try to keep plants living on our planet? Because plants provide oxygen for animals to breathe.

Teacher reviews any questions that the Student missed].

Wrap Up (5 minutes)

Teacher: [Clapping] You did GREAT! Wonderful job! Are there any questions that you have regarding seeds? [Engage in conversation with the Student and follow up with questions you cannot answer by researching the Internet]