

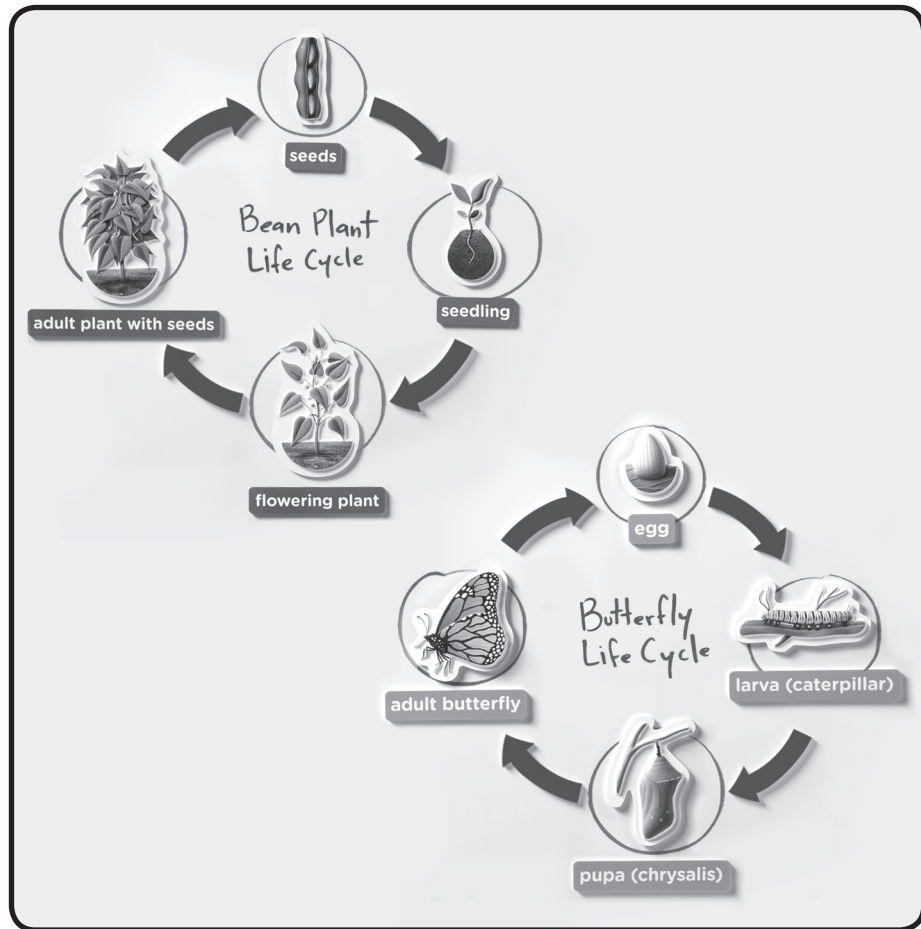
6. Continue calling on students to come up, place, and label successive stages in the bean plant life cycle until it is complete and the Word Bank is empty. See below for the completed life cycle.

7. Repeat this activity with the butterfly life cycle.

**Tip:**

In addition to the life cycle stages of the bean plant, ask students to use a whiteboard marker to label the parts of the plant: roots, stem, leaf, flower, and bean.

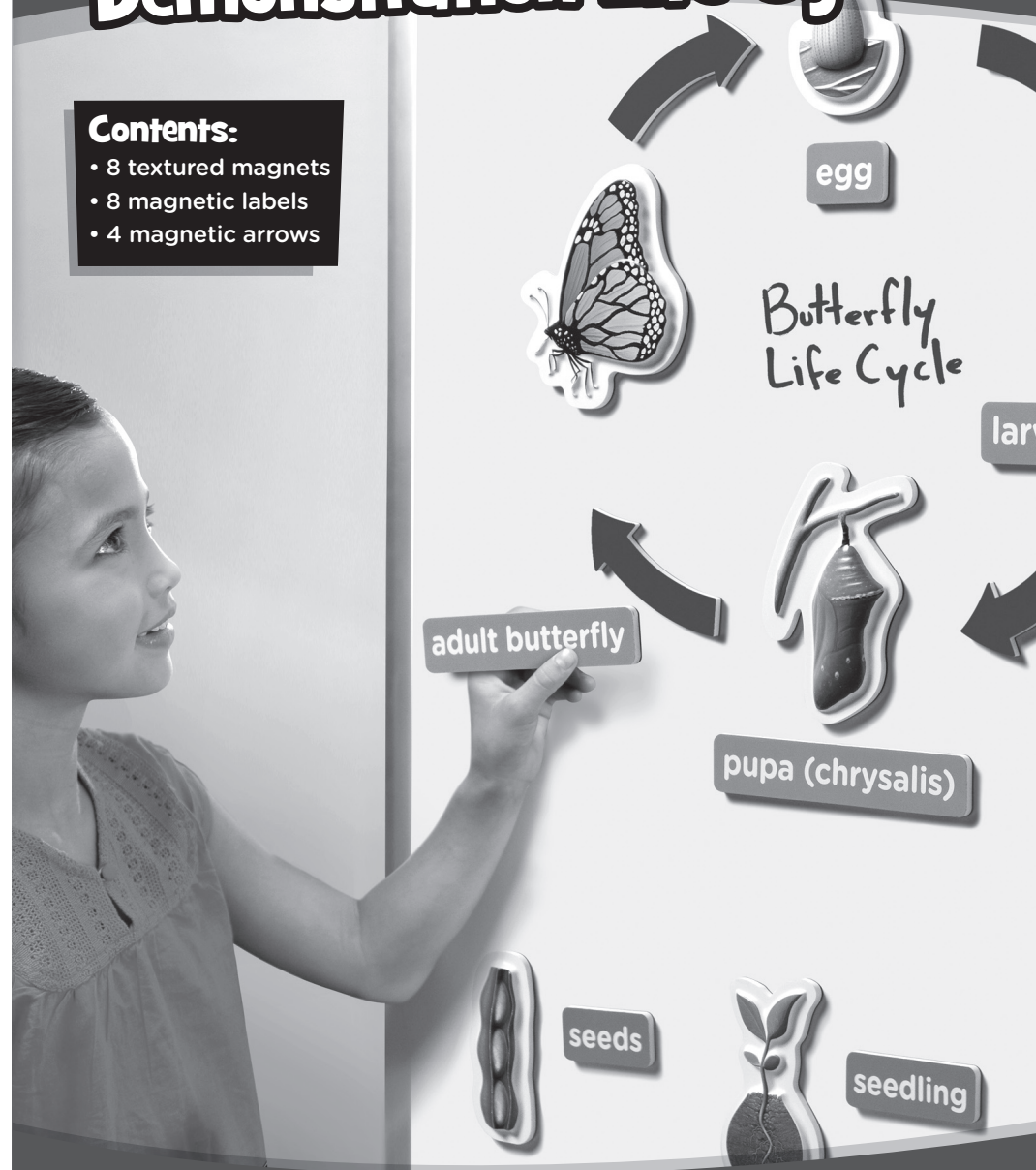
**Answers to Life Cycles Activity**



# 3-D Magnetic Demonstration Life Cycles

**Contents:**

- 8 textured magnets
- 8 magnetic labels
- 4 magnetic arrows



### Introduce Life Cycles

Begin by talking to students about how every living thing goes through stages in its life. Discuss the human life cycle: baby, child, adult, and senior. Explain that different living things have different life cycle stages. Then, place the life cycle magnets on the board. Put arrows between them and label each stage. See the back of this guide for suggested placement and labeling. Explain each life cycle stage.

### Bean Plant Life Cycle

**seeds** The life of a bean plant begins as a seed. The seeds are enclosed in a pod. Each seed contains an *embryo*, which is a tiny plant. The outer shell of the seed is called the *seed coat*. When a seed is placed in moist soil, a root breaks through its seed coat. This is called *germination*.

**seedling** A young plant is called a seedling. As the roots grow down, a stem grows up. The seed coat breaks open and falls off. Two leaves open first. As the seedling continues growing, more leaves form.

**flowering plant** When the bean plant is big enough, it will form flowers. Each flower contains an egg. Bees and other insects visit the flowers. As they do, they spread pollen from one flower to the next. This pollen fertilizes the egg.

**adult plant with seeds** The fertilized eggs develop into seeds. In a bean plant, the seeds are enclosed in pods. The entire structure is called a *bean*. Beans grow from the flowers. People and other animals eat beans. Beans that are not eaten eventually dry out. The dry pods pop open, spilling the seeds. The cycle begins again.

### Butterfly Life Cycle

**egg** The life of a butterfly begins with an egg. An adult female butterfly lays many eggs. The eggs are laid on leaves that become food for the larvae when they hatch.

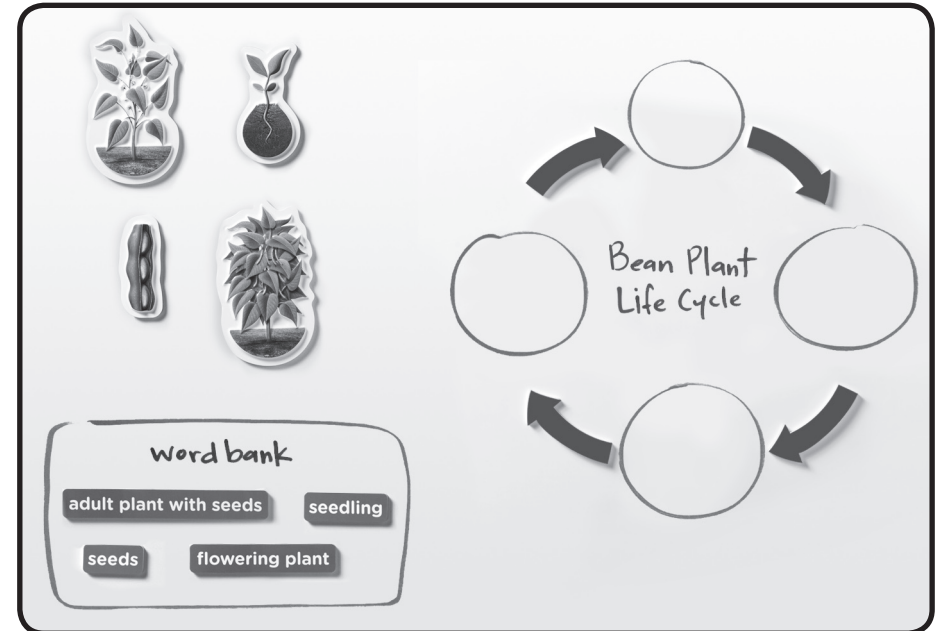
**larva** A butterfly larva is called a *caterpillar*. The caterpillar hatches from the egg. It eats almost constantly in order to grow. The caterpillar *molts* (sheds its skin) as it grows.

**pupa** A butterfly pupa is also called a *chrysalis*. It is encased in a hard covering and hangs upside down. Inside, wings and jointed legs are forming. The entire body is undergoing a transformation into an adult. These changes are called *metamorphosis*.

**adult butterfly** A full-grown adult butterfly emerges from the chrysalis. Adult butterflies mate in order to reproduce. After mating, the female butterfly lays eggs. The cycle begins again.

### Life Cycles Activity

1. Draw 4 circles on the board and place the arrows between them. Write *Bean Plant Life Cycle* in the center.
2. Place the bean plant life cycle magnets in a random order near the life cycle circles.
3. Draw a box to the side and label it *Word Bank*. In the box, place the magnetic labels in random order.



4. Call on a student to come up to the whiteboard, select the first stage (seeds), and place it in the life cycle diagram. Poll the class to make sure that everyone agrees that a seed is the first stage in a bean plant's life cycle.
5. Next, call on a student to find the label (seeds) and place it under (or beside) the life cycle stage.

