

# Wheel of Life: Life Cycle of a Bean Plant

## Contents of Wheel of Life: Life Cycle of a Bean Plant Puzzle

- 8 puzzle pieces to fit into the Wheel of Life Puzzle Base (*sold separately*)
- 8 cards telling the story of the Life Cycle of a Bean Plant



### You will need

Wheel of Life base, Life Cycle of a Bean Plant Puzzle with sequence cards, copies of blank wheel from master, colored pencils.

### Purpose

To understand and appreciate the perfection and sustainability of nature's cycles. To become familiar with how a cycle works (that the end is the beginning again). To develop a sense of how those cycles relate to the eight directions taught by indigenous cultures.

*In preparation, children should have the Orientation to the Four Directions lesson. This lesson can be found in The Waseca Biomes Curriculum, with the lesson for Cardinal Points, or on our website in the A - Z PDF library.*

### Lesson

To begin, orient the puzzle base to north. Place the N tab in the puzzle. Ask the children where South would be and have them place the S tab. Ask where East and West would be and place those tabs. Note the place between East and South. Call it Southeast and have the children place the tab SE. Repeat this procedure for SW, NW, and NE. Place the sun in the middle of the puzzle. Talk about how all the energy comes from the Sun and how that energy moves in cycles or circles.

# E

*Guide: I would like to show you a very special wheel that tells a story about the life of a bean plant. This story begins with a seed sprouting and digging its roots down into the ground. Every time we do this wheel, we will always start in the east.*

Have the children turn to sit on the east side of the puzzle with you. East is always the beginning. Place the puzzle pieces for the Bean Plant Wheel in a row above North with the directions facing up. Find the piece with the E and turn it over. Notice that it shows a newly sprouted seedling emerging into the sunshine.

*Guide: The bean plant seedling pushes up into the sunlight and spreads its leaves to gather energy from the Sun. It uses the energy to grow more roots and leaves.*

# SE

Look for the puzzle piece with SE on the back and place it in the puzzle.

*Guide: The seedling becomes a plant as it grows rapidly. More and more leaves come from the branches that grow taller and taller towards the Sun. The roots under the ground grow as well to gather water and minerals for the plant.*

*The southeast is about growing very quickly. The plant will keep growing more stems and leaves and roots to bring water to all of those new parts.*

# S

Find the puzzle piece with a S on the back and place it in the South position.

*Guide: The plant begins to put its energy toward making a new plant like itself. It forms buds that open into flowers. The flowers open to the insects to help spread the pollen from one flower to another.*

*The south is about the work of the day. The plant wants to make more plants like itself. The first thing it must do is make flowers. Flowers are often colorful or smell good so that insects will come to visit them. The insects get some pollen on them and take it to the next flower. In this way, the flowers are pollinated and start to make a fruit.*

## SW

Find the piece with SW on the back, turn it over and place it in the Southwest position.

*Guide: The flowers are pollinated and the plant prepares to make the fruit that will bear its seeds. The stem becomes woody and strong to hold the fruit. The roots keep growing to support the plant.*

*The southwest is about preparation and rest. The plant is getting ready to make the fruit that will carry the seed. It makes a stronger stem to carry the weight. It makes more roots to nourish the fruit. The flowers set and the fruit begins to grow.*

## W

Place the W piece in the puzzle.

*Guide: The beans begin to grow out of the dying flowers. The plant uses the energy that is collected by the leaves to make more and more beans. Some beans are taken as food by animals.*

*The west is about harvest. The baby seeds are inside of the bean pods. Now the plant has done its work to make a new plant. Let's see what happens next. Can you find what happens to the plant?*

## NW

Find the puzzle piece with NW on the back for the Northwest. Turn it over and place it in the puzzle.

*Guide: Some beans drop to the ground. Inside of the beans are seeds and the food they need to get a good start. The plant begins to die as the days become cooler. Its leaves drop to the ground.*

*As the summer is over and it gets colder, the plant will die. Its leaves will fall to the ground and their energy will go back into the soil. But look, on the ground...*

# N

Find the puzzle piece with N on the back for the North. Turn it over and place it in the puzzle.

*Guide: The bean plant leaves and the beans begin to decompose. Their energy goes back into the soil around the seeds. The seeds wait for warmer days.*

*The bean pod is left from the dying plant. Do you see the seeds inside? They are still alive, but they will rest and wait through the winter.*

# NE

Find the puzzle piece with NE on the back for the Northeast. Turn it over and place it in the puzzle.

*Guide: When the ground warms, a seed sends out a root. The root gathers the energy in the soil to help the seedling to sprout.*

*The ground is warming and the seed is waking up. See the new root sprouting. The northeast is a time between the end and the beginning. The wheel will start all over again.*

After the initial lesson, invite children to practice the puzzle on their own. If they are reading independently, they may read the text cards and place them below the corresponding puzzle piece. The text cards have a control of error on the back for the direction in which they should be placed.

Once the child has practiced the puzzle repeatedly, ask them what is happening in each direction. Invite them to tell the story of the plant. They may wish to tell it on the circle and have other children act out the parts as they narrate. Assign parts for each direction. Perform the story in a circle beginning with East.

## **Extension**

- Have the children use copies of the blank wheel to draw their own illustrations of the story or have them think of the life cycle of a different plant and illustrate that.

## **Some provocative questions:**

- Where does the seed get its first energy to make roots and push up to the Sun?
- What is the plant's plan to make a new plant like itself?
- Why does the plant make a fruit around the seed?
- Can you think of other plants that do not die once they make fruit?
- Can you think of other plants that come back after the winter to make more fruits?