



PURDUE
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Extension - Elkhart County



Mini 4-H

BUGS



An Introduction to 4-H for Youth in Grades K – 2

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Books to Learn about Bugs

A New Butterfly: My First Look at Metamorphosis (Kids Can Pr. 1997) by Pamela Hickman, is a story about the life cycle of a butterfly as seen through the eyes of a young girl. This book contains a section with extended information and suggestions for related activities.

Bugs for Lunch (Charlesbridge Publishing, 1999) by Margery Facklam, is a rhyming book about bug-eating animals. There is a section at the back of the book that provides additional information on each bug-eater.

I'd Like to Be an Entomologist: Learning About Insects, Spiders and Other Arthropods (Twin Sisters Productions, 1996) by Kim M. Thompson, is a book and audio cassette combination that answers many questions about bugs through song. This set also introduces children to Dr. Randy Mitchell, an entomologist.

Janice Vancleave's Play and Find Out About Bugs: Easy Experiments for Young Children (John Wiley & Sons, 1999) by Janice Pratt Vancleave, contains 50 simple experiments that help children discover information about bugs.

The Big Bug Book (Little Brown & Co., 1998) by Margery Facklam, introduces big bugs to young audiences. The illustrations help children understand the size of the bug by picturing the bug with objects familiar to the child.

The Butterfly Alphabet Book (Charlesbridge Publishing, 1995) by Brian Cassie and Jerry Pallotta, is a book filled with pictures and descriptions of butterflies with each picture representing one of the letters of the alphabet.

Developed by Purdue Extension Elkhart County
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Elkhart County Mini 4-H Bugs Manual
Revised October 2024

4-H Facts



The 4-H Symbol: A four leaf clover with an “H” in each leaf.

4-H Colors: Green and White

The 4-H Motto: To make the best better!

The 4-H Pledge:

I Pledge
My Head to clearer thinking
My Heart to greater loyalty
My Hands to larger service
My Health to better living
For my Club,
My Community,
My Country,
and my World.

Mini 4-H

Welcome to Mini 4-H! You are now a member of the Elkhart County 4-H family! We hope that you will have lots of fun learning new things in your 4-H career.

Mini 4-H is designed for youth in Kindergarten through Second grade. It will give you a taste of the 4-H program as well as help you to explore a variety of project areas.

Mini 4-H'ers may enroll in two different projects each year. This manual contains fun, age-appropriate activities to complete throughout the 4-H year. These activities will help you to learn about the project you have chosen. Additionally, the manual contains all instructions for the exhibit you will be preparing for the Elkhart County 4-H Fair in July.

There is no competition in the Mini 4-H program. Each child who completes a project for the Fair will receive the same green completion ribbon and certificate. Judges comment sheets are provided only as a way to help you do your very best on future projects.

Mini 4-H does not have regular monthly meetings. Try to attend the special activities planned especially for YOU! These will give you a chance to meet the project leaders, have some hands-on fun, and ask questions about your important Fair display. Mini 4-H is FUN! You will enjoy it.

Once you enter the third grade you can join a regular 4-H club that meets monthly. You must enroll each year of your 4-H career.

If you have questions about the Mini 4-H program, please call the Purdue Cooperative Extension Office at 574-533-0554. We will be happy to answer your questions.

As a Mini 4-H parent, please help guide and encourage your child through the activities. Work with them to help them to “learn by doing”. Activities are designed to help your child learn about the project they have chosen. It is not required that they complete all the activities. Choose those that interest you and your child.

Bugs! Bugs! Everywhere You Look!

Almost anywhere you look you can find bugs. Some bugs crawl on the ground and some bugs fly in the air. Most bugs are outside, but some bugs might be in your house. There are bugs that have lots of color and are easy to see. Other bugs look like the things around them and are hard to see. Some bugs make noises, and some bugs are so quiet you may not even know they are around.

Most bugs are **insects**. An insect has 3 body parts and 6 legs. The 3 body parts are called the **head**, **thorax**, and **abdomen**. The head is the first part and usually has eyes and feelers (or **antennae**). The thorax is the middle part where all 6 legs are attached. The abdomen is the last part and is like your tummy. If the bug is a girl, the abdomen is the part of the insect that contains eggs.

ACTIVITY 1 – WHAT MAKES AN INSECT?

Materials needed for this activity: Insect Body Parts Activity Page 17, scissors, Insect Body Parts Activity Page 19, stapler, crayons or markers

What you will do:

1. Color the insect on the **Insect Body Parts Activity, page 17**.
2. Cut along the dotted lines on **Insect Body Parts Activity, page 19**.
3. Lay the **Insect Body Parts Activity Page** on top of the **Insect Body Parts Activity Page**.
4. Staple where you see this symbol: 
5. Fold back each flap, one at a time, to make a door so you can see the part of the insect the word on the flap is naming.

Optional Activities:

1. Encourage children to compare their own body parts to the body parts of an insect. Compare the number of legs, where the legs are attached, etc.
2. Encourage children to scurry like a spider, float like a butterfly, and leap like a grasshopper. How many more ways can you think of that bugs move?
3. Using the tune of “Head, Shoulders, Knees and Toes,” sing the words, “Head, Thorax, Abdomen and Legs. Head, thorax, abdomen and legs. Head, thorax, abdomen and legs. Insects are our friends.” Be sure to point to each body part as you sing it.

ACTIVITY 2 – SPIDERS ARE NOT INSECTS

What about spiders? Are spiders insects? In Activity 1 we learned that insects have 6 legs and 3 body parts. Spiders are not insects because they have 8 legs and 2 body parts. The first body part of an insect is the head and the second body part is the thorax. The head of an insect and the thorax of an insect are two different body parts, but the head and thorax of a spider are made together and are only one body part. This body part is called the **cephalothorax**. The legs of a spider are attached at the cephalothorax. The abdomen of the spider has

spinnerets and the part that lays the eggs. The spinnerets have tubes in them. Spiders make webs from the silky fiber that comes out of the spinnerets.

Materials needed for this activity: Spider Parts Activity Page 18, scissors, Spider Parts Activity Page 20, stapler, crayons or markers

What you will do:

1. Color the spider on the **Spider Parts Activity Page 18**.
2. Cut along the dotted lines on **Spider Parts Activity Page 20**.
3. Lay the **Spider Parts Activity Page** on top of the **Spider Body Parts Activity Page**.
4. Staple where you see this symbol: 
5. Fold back each flap, one at a time, to make a door so you can see the part of the spider the word on the flap is naming.

Optional Activities:

1. Create math problems using insects and spiders. For example, ask how many legs there would be if you caught 3 insects and 1 spider. The answer is 26 legs. Insect legs = 18 (3×6) plus 8 spider legs.

ACTIVITY 3 – INSECT OR SPIDER GAME

Materials needed for this activity: Insect or Spider Activity Page 21, scissors, Insect or Spider Activity Page 22, paper lunch bag, Insect or Spider Graph, crayons or markers

What you will do:

1. Cut out the squares on the dotted lines to make cards.
2. Place the cards in a paper lunch bag and shake to mix them up.
3. Draw out one of the cards. If the card shows a picture of an insect or if the words describe an insect, color in the bottom square of the graph right above the insect. If the card shows a picture of a spider or if the words describe a spider, color in the bottom square of the graph right above the spider.
4. Choose again and color in the square that shows what you picked. Choose a total of eight times. Did you choose more insect cards or more spider cards? (This game can be played with partners and in a group of three. Each child takes a turn drawing cards until one person has either filled up one side of the graph or until the group has run out of cards.)

Optional Activities:

1. A memory game can be played with the cards. Glue cards onto the same color of construction paper so you cannot see through the backs. Mix all the cards and lay them face down in rows. Turn over any 2 cards. If both cards are insects or words about insects, keep them and the next person takes their turn. If both cards are about spiders or words about spiders, keep them and the next person takes their turn. If both cards do not refer to the same thing (either an insect or a spider), you must put the cards back face down and the next person takes their turn. The game ends when all the cards are matched.

Insect or Spider Graph

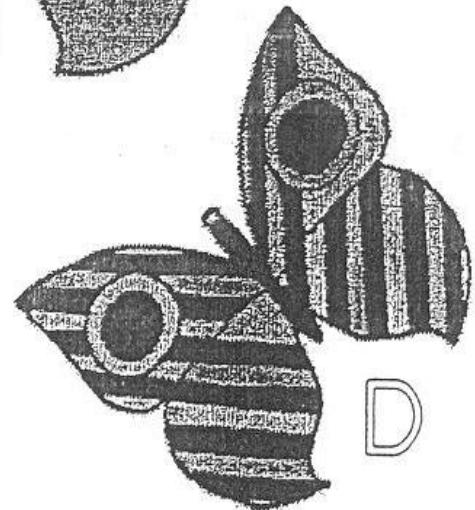
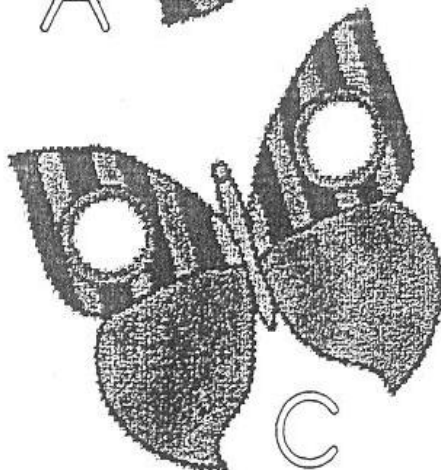
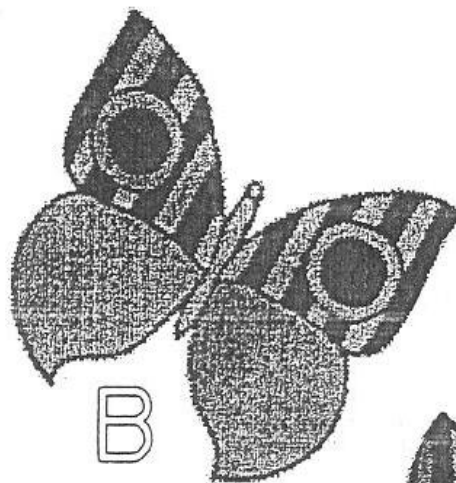
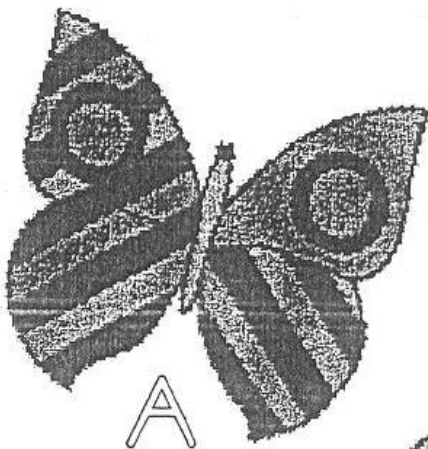
8	8
7	7
6	6
5	5
4	4
3	3
2	2
1	1
Insect 	Spider 

ACTIVITY 4 – BOTH SIDES ARE THE SAME

Have you ever looked closely at a bug? Most bugs are the same on both sides. When a bug has 2 wings on the right side, it usually has 2 wings on the left side too. Things that are the same on both sides are **symmetrical**. Take a minute to look around. Can you find things around you that are symmetrical? Are animals symmetrical? What about you and your friends?

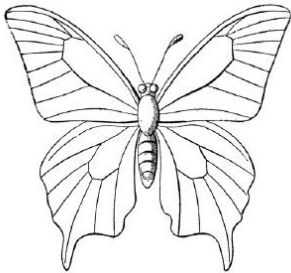
Why do you think bugs are symmetrical? What might happen if a bug had 3 long legs on one side and 3 short legs on the other side? Get an adult to help you find out. First, make one small wheel and one large wheel out of cardboard. Use a pencil or straw as an axle to connect the 2 wheels. What happens when you try to roll the wheels? What might happen if a bug had 1 wing on one side and no wings on the other side? (*Hint: Take one of the wheels off and try to roll only one wheel and an axle.*)

Which butterflies below are symmetrical? (*Answer on page 17.*)



ACTIVITY 5 – MAKE A BUTTERFLY

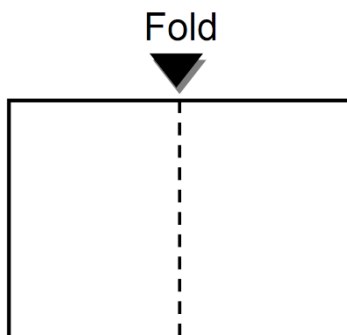
Most bugs have the same color and design on the left side and on the right side. If a bug has a blue stripe and a red dot on the left side, the bug will usually have a blue stripe and a red dot on the right side, too. Make your own symmetrical butterfly below.



Materials needed for this activity: **Butterfly Symmetry Activity Page 23**, 8 ½ inch by 11 inch construction paper, scissors, several colors of paint, chenille stems and Scotch tape

What you will do:

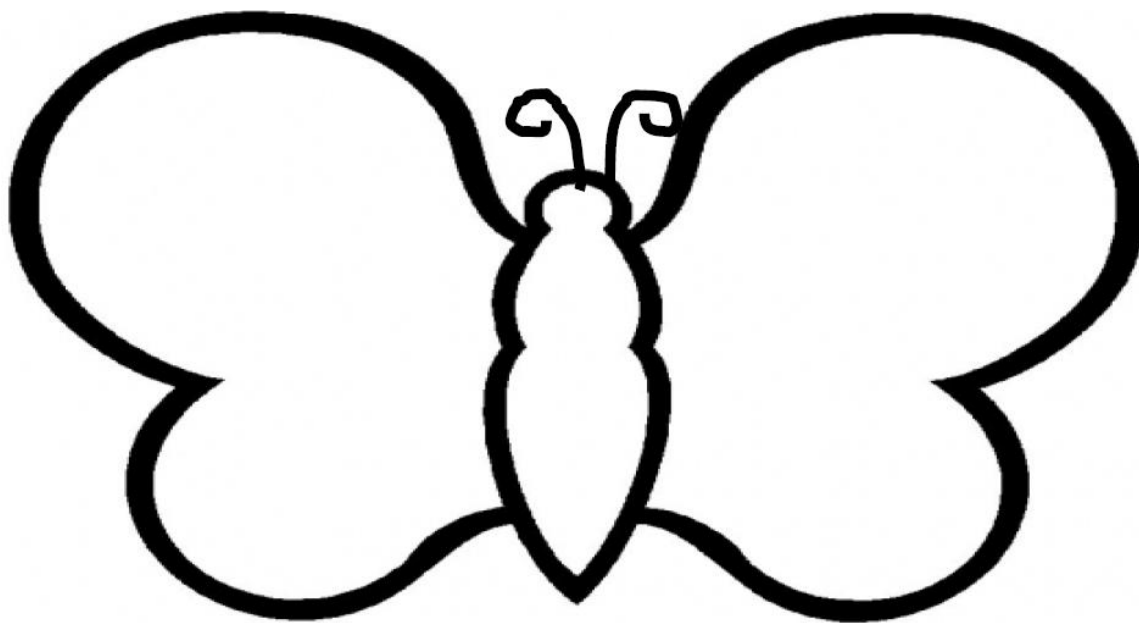
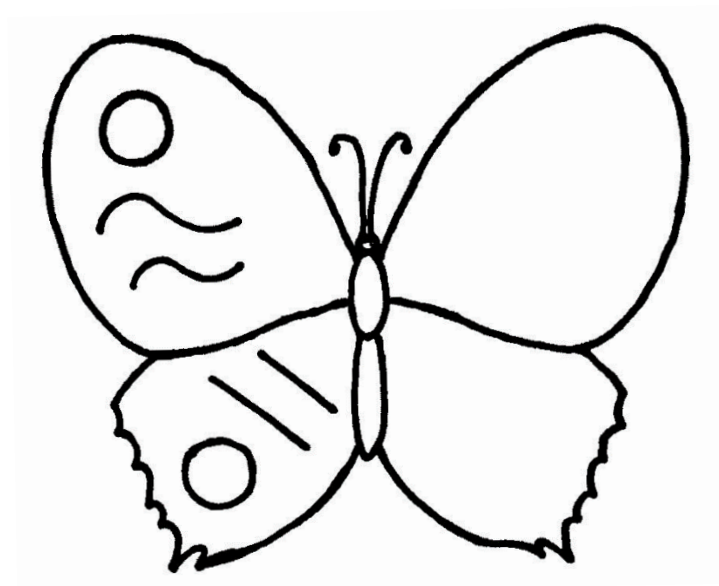
1. Fold construction paper in half like a book.



2. Cut the **Butterfly Symmetry Activity Page** along the dotted line. Place the **Butterfly Symmetry Activity Page** on top of the folded construction paper. Be sure the cut edge is on the fold.
3. Cut the butterfly shape out. Be sure not to cut along the fold where the body of the butterfly is.
4. Unfold the paper. You should have a butterfly shape. Carefully add dots of colored paint to make a design on one wing of the butterfly.
5. Carefully press both wings together. What happened to the design you made with paint on one of the butterfly's wings? Is your butterfly symmetrical?
6. Finish your butterfly by taping on chenille stem antennae.

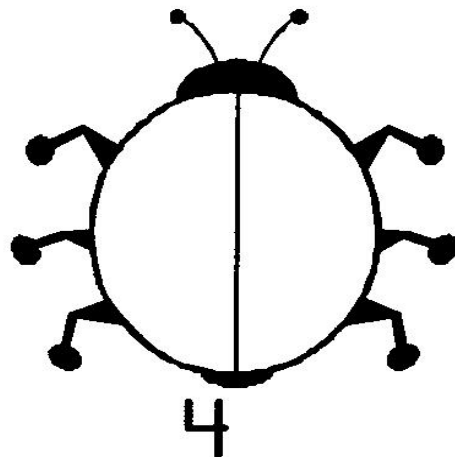
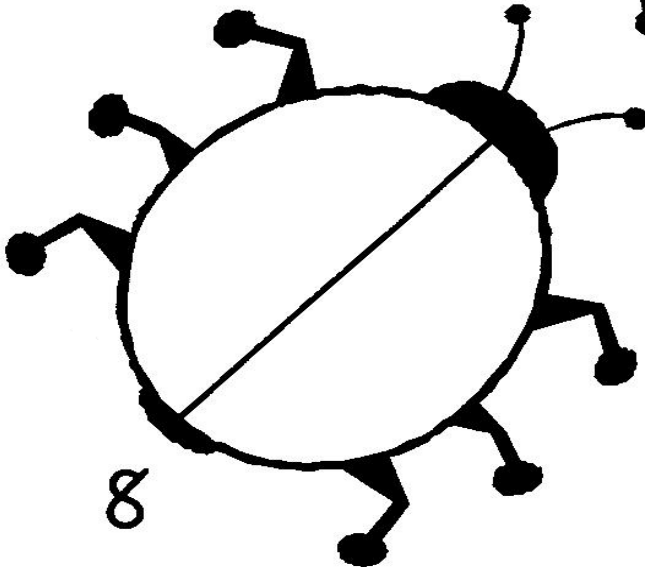
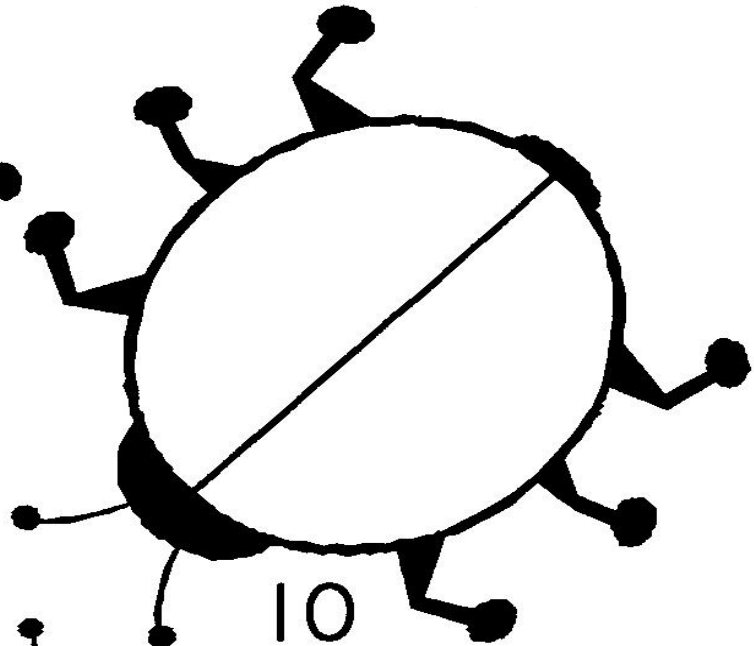
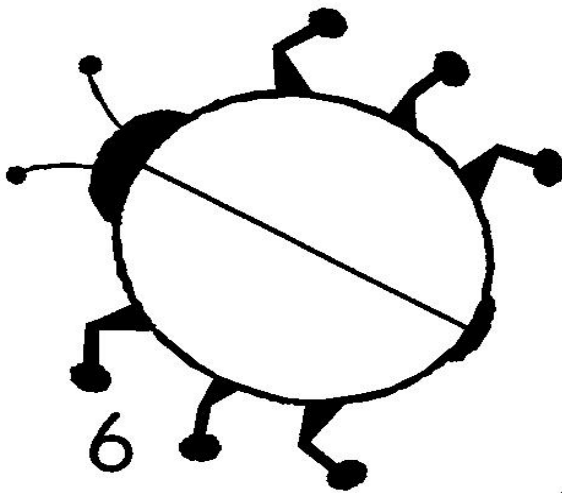
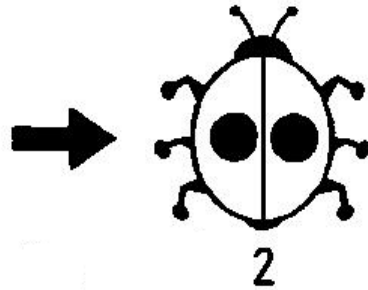
ACTIVITY 6 – MATCH THE BUTTERFLY

Make the top butterfly the same on both sides.
Use the bottom butterfly to create your own symmetrical pattern.



ACTIVITY 7 – SPOT THE LADYBUG

Look for a number by each ladybug. Put that number of spots on each ladybug like the example below. Remember, bugs are the same on both sides.



ACTIVITY 8 – MAKE A SHAPE BUG

Bugs can be many different shapes and sizes as well as any color or pattern. Take a walk outside and look at all the different kinds of bugs. What kind of bug would you make if you could create your own special bug? Would it be large or small? Would it be brightly colored or would it be hard to see in a pile of leaves on the ground?

Materials needed for this activity: Glue, crayons or markers, scissors, pencil, white or colored paper, objects with a variety of shapes to trace (optional), buttons, chenille stems, sequins, glitter, or other items to decorate your bug

What you will do:

1. Think about a bug you would like to make. Think about the shapes you will need to make your bug. Draw the shapes on white or colored paper. *(Children with lesser skill may need to trace around objects to get the shapes they need. Some children may choose to decorate an object like a tongue depressor as a bug.)*
2. Cut out the shapes you need to make your bug.
3. Glue the shapes together to make your bug.
4. Color and decorate your bug using all of the things you collected.

Optional Activities:

1. Encourage children to make a bug collection with the bugs they made. Let children glue the bugs they made in the lid of a shoebox or on a piece of cardboard and label each bug with a name they choose.
2. Invite older children to write a story about their special bug. Have them include where the bug lives, what it eats, and how it protects itself from its enemies.

ACTIVITY 9 – BUG HIDE AND SEEK

Have you ever wondered how bugs stay safe from their enemies? One way bugs stay safe is to look like the things around them. This is called camouflage. The picture below shows an insect called a **walking stick**. Can you guess how this bug got its name? This bug stays safe by looking like a twig or a stick. The walking stick stands very still so that when birds or other animals are looking for a meal, they think the walking stick is part of a tree and not something good to eat.



Materials needed for this activity: Bug Hide and Seek Activity Page 24, scissors, markers or crayons, and white paper

What you will do:

1. Cut along the dotted lines. The ovals are the bugs and the squares are the hiding places.
2. Lay each bug on the hiding places one by one. Which hiding place should each bug use to stay safe from enemies? Why?
3. Trace the shape of one of the bugs and one of the hiding places onto a piece of white paper to make your own bug and hiding place. Use crayons or markers to create your own camouflage. *Remember the bug and the hiding place should match to keep the bug safe.*

Optional Activities:

1. Encourage children to make bugs out of newspapers, wallpaper or colored construction paper. Take turns hiding the bugs in plain sight. Remember the bugs are hardest to see when they hide on something that is the same color as they are or on something that looks like them.

ACTIVITY 10 – COPYCAT BUGS

Some bugs stay safe by looking like bugs that taste bad. One insect that stays safe this way is a butterfly called a viceroy. A viceroy butterfly looks almost the same as a monarch butterfly. Both of them have very bright orange and black wings, but the monarch tastes bad.

The caterpillars of monarch butterflies feed on milkweed. This causes the grown up monarch to have milkweed poison in them. If a bird eats a monarch butterfly, the bird will get sick and throw up. After that, the bird will remember the bright orange and black colors and will not eat any butterfly with those colors. This keeps the viceroy butterfly safe because birds think the viceroy will make them sick too.

Materials needed for this activity: Copycat Bug Activity Page 14 and crayons

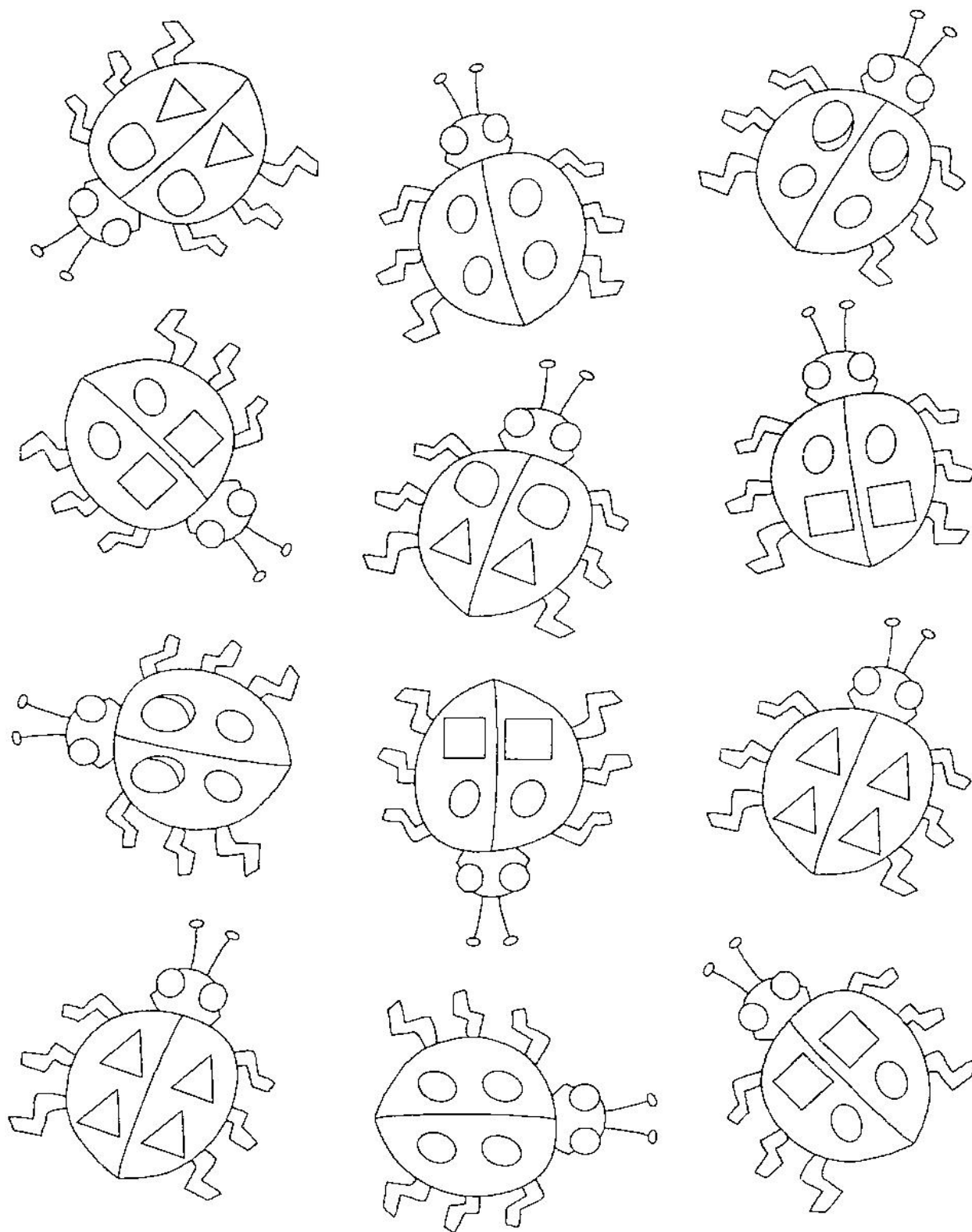
What you will do:

1. Look carefully at all the bugs on the **Copycat Bug Activity Page**.
2. Find the match for each bug and circle the matching bugs with the same color crayon. *Hint: Each bug has only one copycat bug that looks exactly like it.*

Optional Activities:

1. Challenge children to make a copycat bug. Invite children to work in pairs. Give each child two oval pieces of construction paper to use as bugs. Have each child draw a unique design on one of their bugs. Let the children exchange designed bugs with their partner. Have children make a copycat bug by copying onto their blank bug the same design their partner drew.

Copycat Bug Activity Page



ACTIVITY 11 – WHERE ARE BUGS IN WINTER?

Bugs are almost everywhere you look in the spring, summer and fall. But when it gets cold outside, bugs are not easy to find. Have you ever wondered what happens to bugs in the winter? Not all bugs do the same thing.

Some bugs, like crickets, lay eggs in the ground before it gets really cold outside. After the crickets lay their eggs, they die. The eggs hatch when it gets warm again in the spring.

Other bugs, like ladybugs, **hibernate**, or sleep, through the winter. They find a warm spot in a hole in a tree or maybe under your house and sleep during all the cold days. When it starts getting warm again, they wake up.

Ants live all winter deep in their tunnels under the ground. Honeybees spend the winter snuggled close to each other in their hive.

Some bugs, like monarch butterflies, **migrate**, or travel to a different part of the world. When the weather starts to get cool, they fly to places where the air is warm. The butterflies stay in the warm place for several weeks. When spring comes back to the place they left, the butterflies fly home.

Materials needed for this activity: Help the Butterflies Migrate Activity Page 16 and pencil

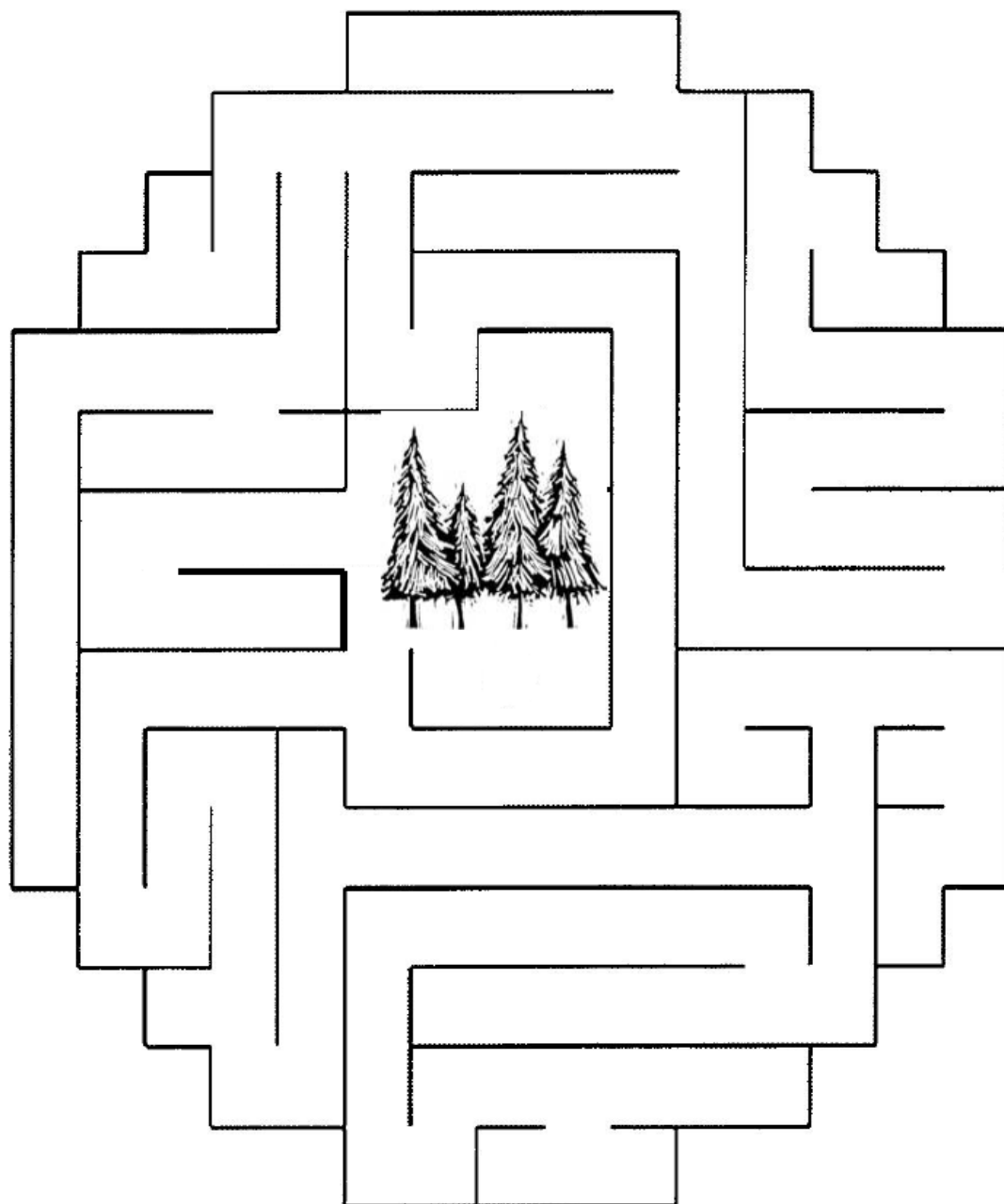
What you will do:

1. Draw a line through the maze from the monarch butterflies to the trees where they will spend the winter. Do not cross over the lines.

Optional Activities:

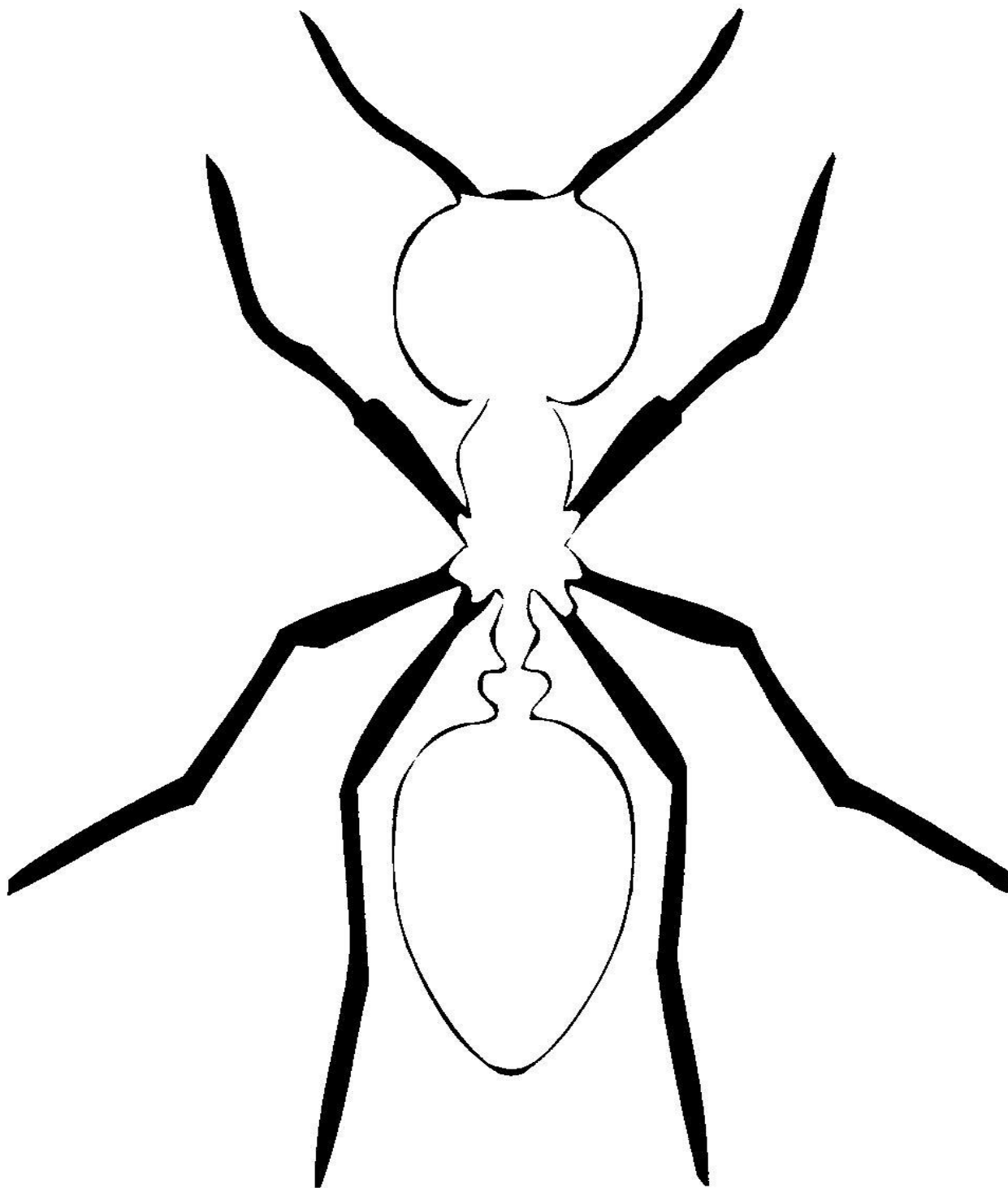
1. Encourage children to think about ways people keep warm in the winter. Make a poster using pictures from magazines showing the ways people keep warm. Are people and bugs similar in any of the ways they keep warm? (*Example: People sometimes “migrate” to a warmer part of the world.*)

Help the Butterflies Migrate Activity Page

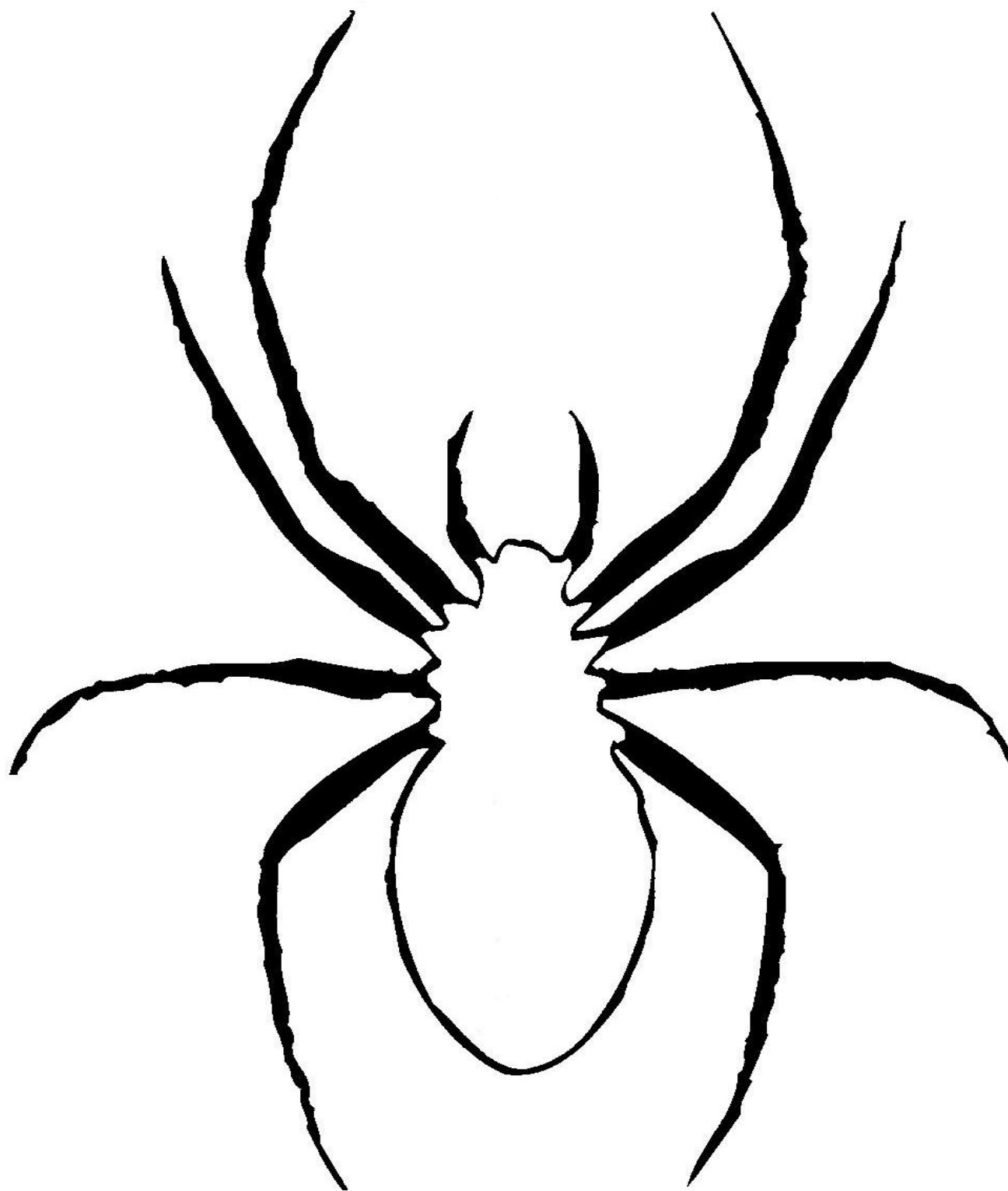


Answer to Activity 4 *Which Butterflies Are Symmetrical* on page 8: Butterflies B and C.

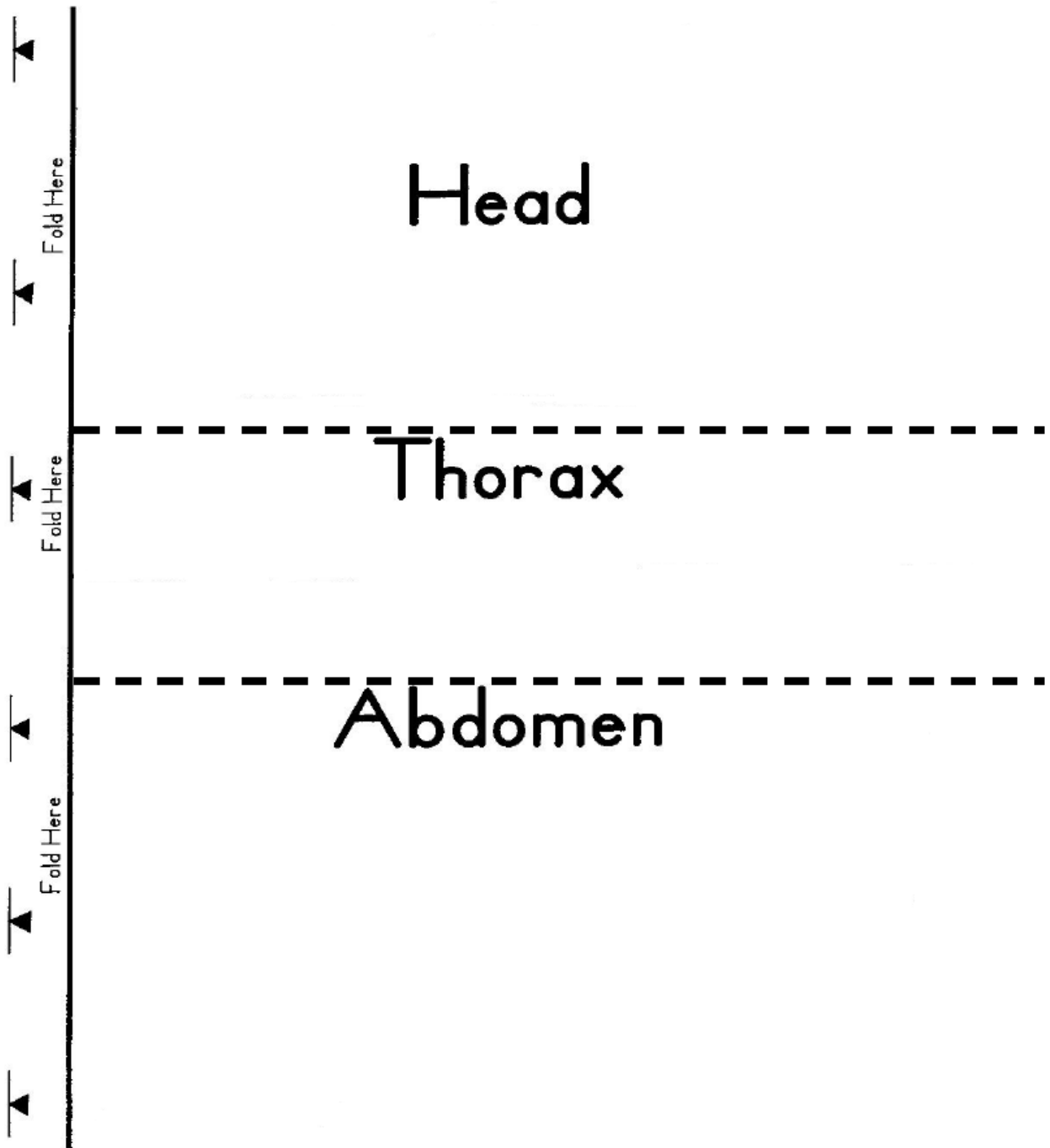
Insect Body Parts Activity Page



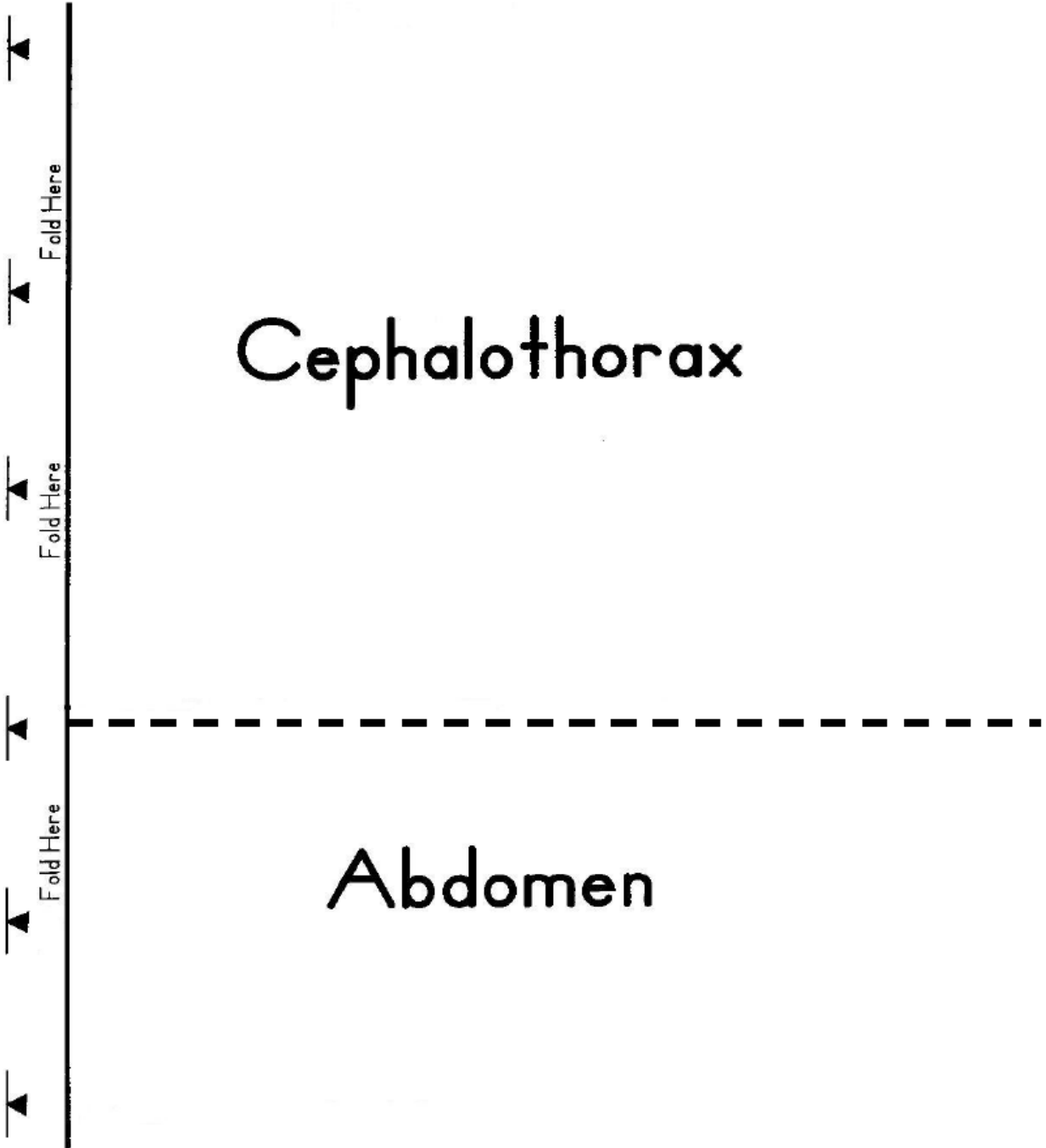
Spider Parts Activity Page



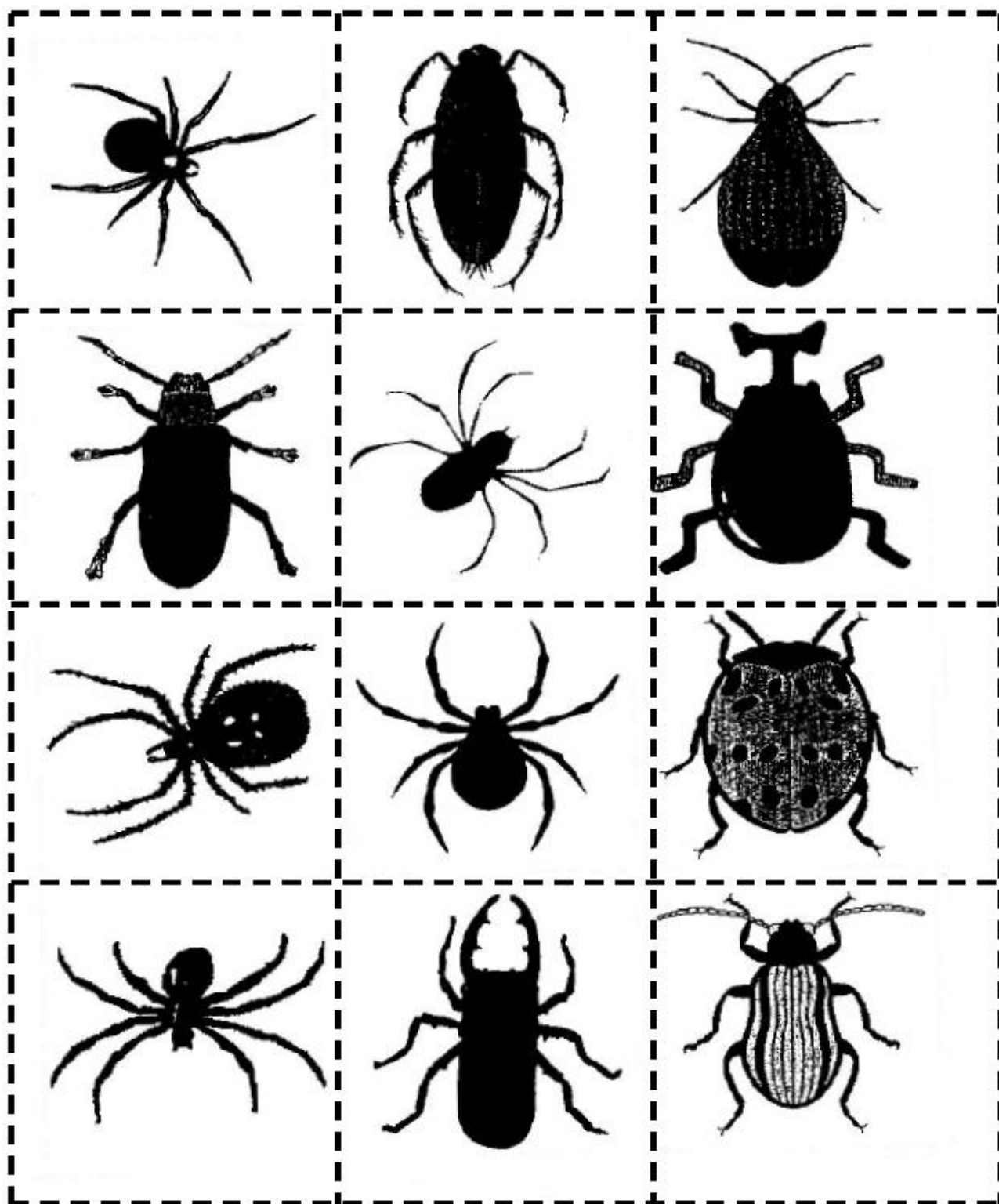
Insect Body Parts Activity Page



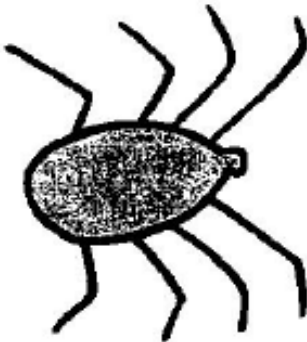
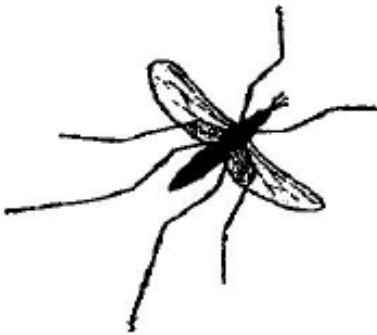
Spider Parts Activity Page



Insect or Spider Activity Page



Insect or Spider Activity Page



6
Legs

8
Legs



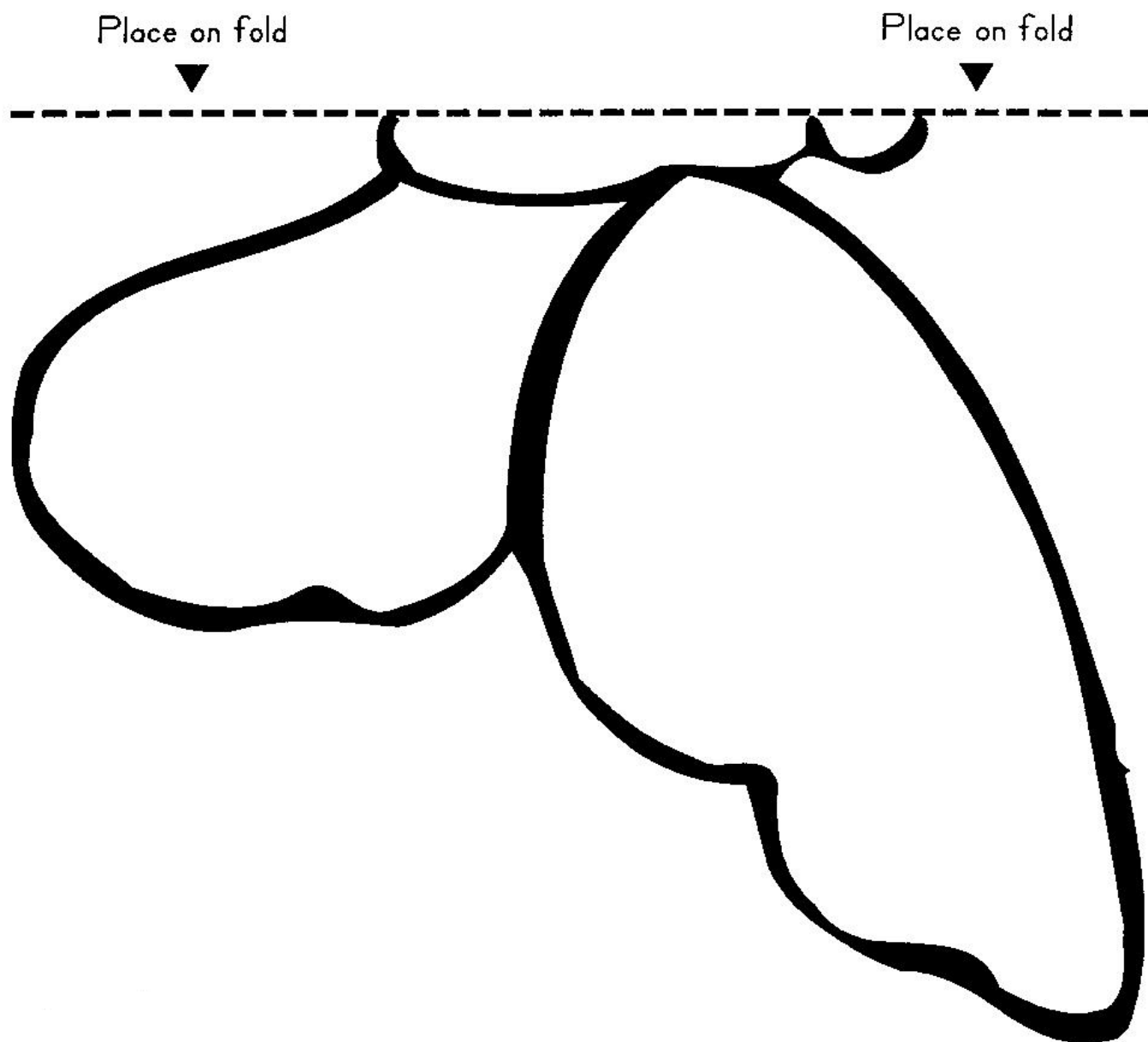
3
Body
Parts



2
Body
Parts



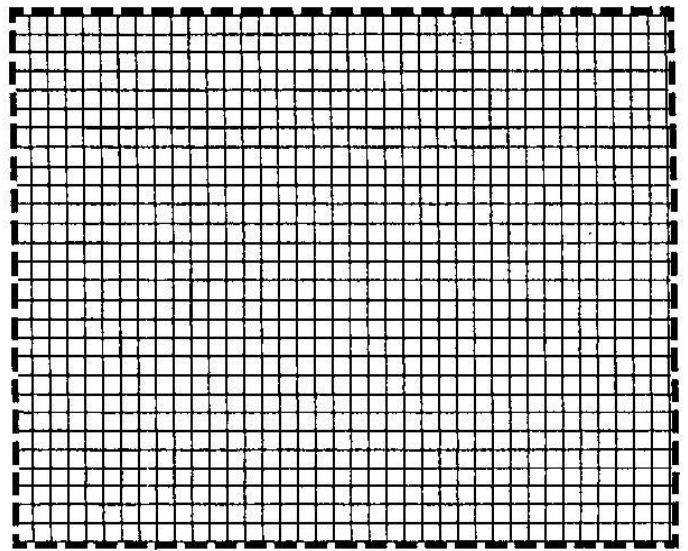
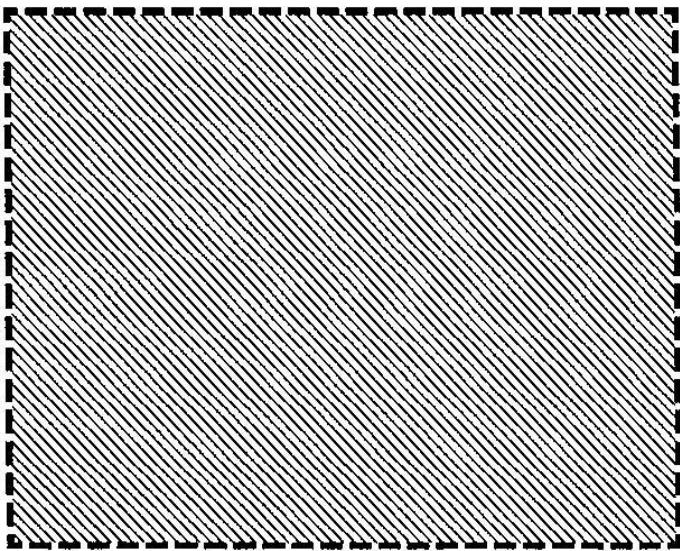
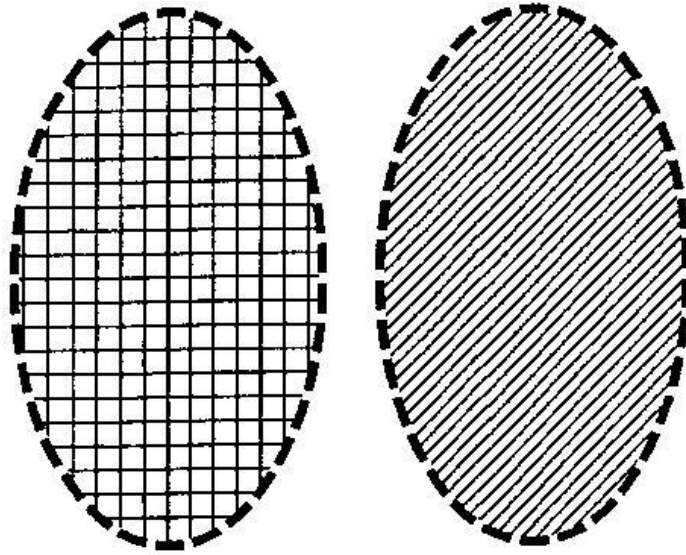
Butterfly Symmetry Activity Page



Optional Activities:

1. Make a variety of butterflies. Use yarn to connect them to a wire hanger to create a mobile of butterflies.
2. Encourage children to create a diorama in a shoebox for their bug. Use things from nature to make it realistic.

Bug Hide and Seek Activity Page



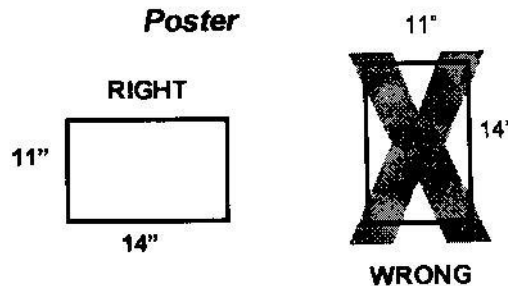
Optional Activities:

1. Use wallpaper or gift wrap scraps to make a camouflage game. Make 6 squares from a different design and glue them onto index cards. These are the hiding places for the bugs. Make 6 ovals out of the scraps, one to match each square, and glue them onto index cards. These are the bugs. Mix up the cards and lay them all face down. Invite one child to choose 2 cards. If the child chooses a bug and a hiding place that match, the bug is safe, and the child may lay the pair of cards aside. Then the next child takes a turn. If the child chooses 2 bugs, 2 hiding places, or a bug and a hiding place that do not match, the cards are put back and the next child takes a turn. Play continues until all the bugs are safe.

What to Exhibit

Bugs

Make a Bugs poster. Your poster must be exactly 11 inches by 14 inches, displayed horizontally (wider than it is tall) and attached to a stiff backing (like cardboard). You may use foam board. Foam board is already stiff and does not require additional backing. Your poster must be covered with clear plastic. This can be a poster sleeve. If you have made a three-dimensional item, you may use clear vinyl. Your poster must have a title.



NOTE: No oversize posters will be accepted for exhibition.
No un-mounted items will be accepted for exhibition.

Choose one of these ideas for your poster:

1. Make a poster of an insect or spider. Label the body parts.
2. Draw a picture of a butterfly. Be sure to make the designs on the wings symmetrical.
3. Make a poster showing some of the ways bugs protect themselves.

NOTE: If you are unable to pick your project up on Project Release Day, please make arrangements to have it picked up. All projects must be removed from the exhibit building on that day. There is no available storage space for unclaimed projects.

All posters must include: *(both are found on page 26)*

- Record Sheet (attached to the back of the poster)
- Exhibit Tag (attached in the lower right front corner of the poster)

Exhibit Tag:

Mini 4-H	Name		City		Grade		School		Bugs
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Record Sheet

----- Cut here -----

Name:

Grade:

The bug that I chose is (*name of bug*):

List some of the things that your bug needs to survive.

Where does your bug live?

What is one thing you learned about your bug?