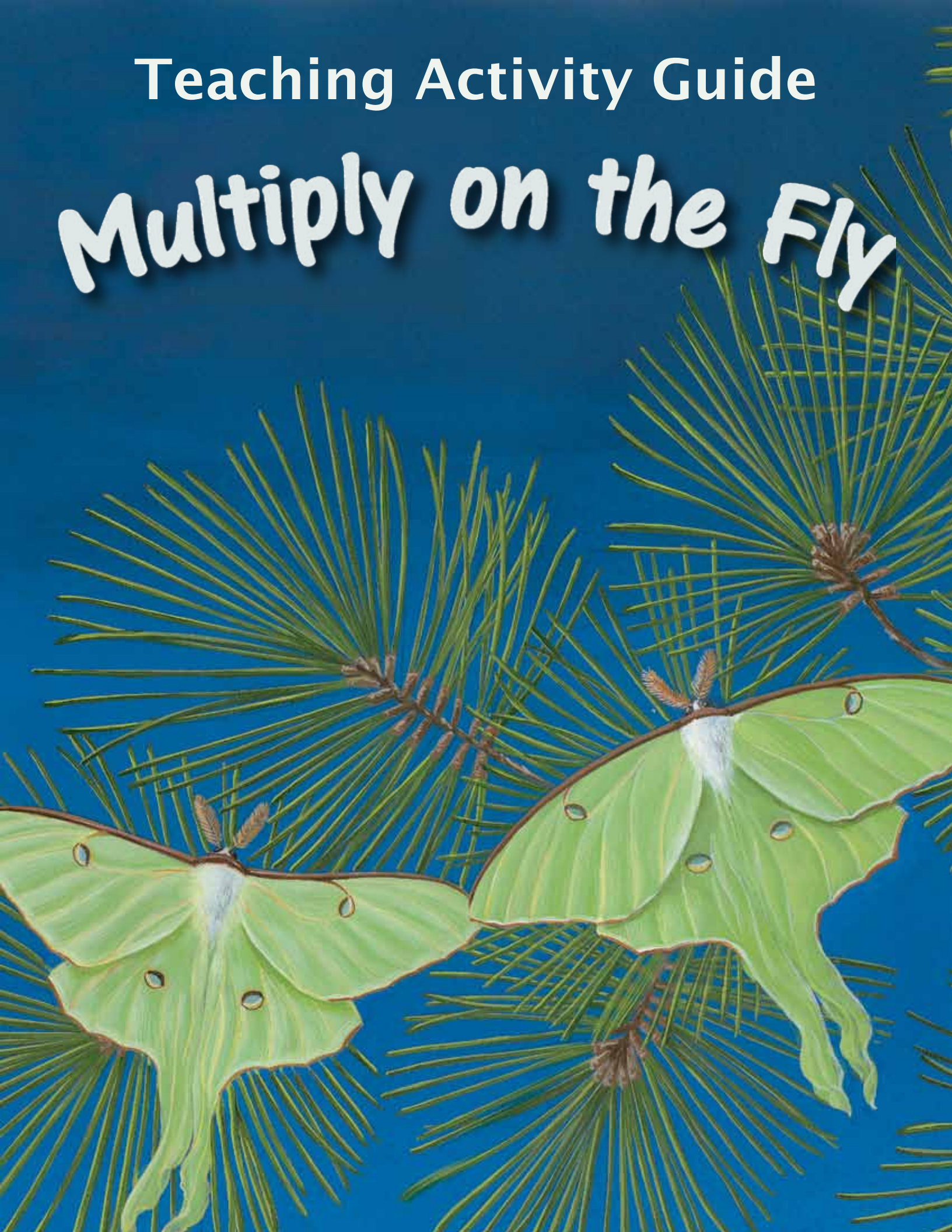


# Teaching Activity Guide

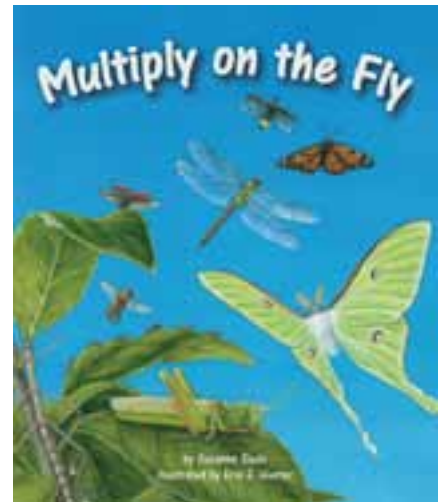
# Multiply on the Fly



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illustrated by Erin E. Hunter

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# How to Use This Activity Guide

There are a wide variety of activities that teach or supplement all curricular areas. The activities are easily adapted up or down depending on the age and abilities of the children involved. And, it is easy to pick and choose what is appropriate for your setting and the time involved. Most activities can be done with an individual child or a group of children.

**Glossary/Vocabulary words:** Words may be written on index cards, a poster board, or on a chalkboard for a “word wall.” If writing on poster board or chalkboard, you might want to sort words into nouns, verbs, etc. right away to save a step later if using for Silly Sentences. Leaving the words posted (even on a refrigerator at home) allows the children to see and think about them frequently. The glossary has some high-level words. Feel free to use only those words as fit your situation.

**Silly Sentence Structure Activity:** Game develops both an understanding of sentence structure and the science subject. Use words from the “word wall” to fill in the blanks. After completing silly sentences for fun, have children try to fill in the proper words by looking for the information in the book.

**Sequence Sentence Strips:** Cut into sentence strips, laminate if desired, and place in a “center.” Have children put the events in order. Children may work alone or in small groups. Cards are in order but should be mixed up when cut apart.

## Animal Card Games:

**Sorting:** Depending on the age of the children, have them sort cards by:

where the animals live (habitat)	tail, no tail
number of legs (if the animals have legs)	colors or skin patterns
how they move (walk, swim, jump, or fly)	animal class
type of skin covering (hair/fur, feathers, scales, moist skin)	
what they eat (plant eaters/herbivores, meat eaters/carnivores, both/omnivores)	

**Memory Card Game:** Make two copies of each of the sorting card pages and cut out the cards. Mix them up and place them face down on a table. Taking turns, each player should turn over two cards so that everyone can see. If the cards match, he or she keeps the pair and takes another turn. If they do not match, the player should turn the cards back over and it is another player’s turn. The player with the most pairs at the end of the game wins.

**Who Am I?** Copy and cut out the cards. Poke a hole through each one and tie onto a piece of yarn. Have each child put on a “card necklace” without looking at the animal pictured on it. The card hangs down the back. The children get to ask each person one “yes/no” question to try to guess their animals. If a child does not know the answer, they should say they don’t know. This is a great group activity and a great “ice-breaker” for children who don’t really know each other.

**Charades:** One child selects a card and must act out what the animal is so that the other children can guess. The actor may not speak but can move like the animal, can imitate body parts or behaviors. For very young children, you might let them make the animal sound. The child who guesses the animal becomes the next actor.

## Math Card Games (Make four copies of the math cards to play these games):

**Tens Make Friends Memory Game** is a combination of a memory and adding game.

- Play like the memory game, above.
- If the animal numbers add up to 10, the child keeps the pair and takes another turn.
- If they do not add up to ten, the player should turn the cards back over and it is another player’s turn.

**Go Fish for Fact Families** is a twist on “Go Fish.”

- Shuffle cards and deal five cards to each player. Put the remaining cards face down in a draw pile.
- If the player has three cards that make a fact family, he/she places them on the table and recites the four facts related to the family. For example, if someone has a 2, 3, and 5, the facts are:  $2 + 3 = 5$ ,  $3 + 2 = 5$ ,  $5 - 2 = 3$ ,  $5 - 3 = 2$ .
- The player then asks another player for a specific card rank. For example: “Sue, please give me a 6.”
- If the other player has the requested card, she must give the person her card.
- If the person asked doesn’t have that card, he/she says, “Go fish.”
- The player then draws the top card from the draw pile.
- If he/she happens to draw the requested card, he/she shows it to the other players and can put the fact family on the table. Otherwise, play goes to the next person.
- Play continues until either someone has no cards left in his/her hand or the draw pile runs out. The winner is the player who then has the most sets of fact families.



# What Do Children Already Know?

---

Young children are naturally inquisitive and are sponges for information. The whole purpose of this activity is to help children verify the information they know (or think they know) and to get them thinking “beyond the box” about a particular subject.

Before reading the book, ask the children what they know about the subject. A list of suggested questions is below. The children should write down their “answers” (or adults for them if the children are not yet writing) on the chart found in Appendix A, index cards, or post-it notes.

Their answers should be placed on a “before reading” panel. If doing this as a group, you could use a bulletin board or even a blackboard. If doing this with individual children, you can use a plain manila folder with the front cover the “before reading” panel. Either way, you will need two more panels or sections—one called “correct answer” and the other “look for correct answer.”

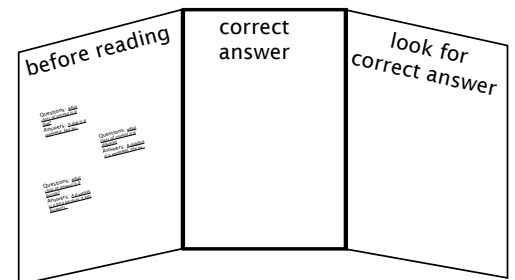
Do the children have any more questions about the subject? If so, write them down to see if they are answered in the book.

After reading the book, go back to the questions and answers and determine whether the children’s answers were correct or not.

If the answer was correct, move that card to the “correct answer” panel. If the answer was incorrect, go back to the book to find the correct information.

If the child/children have more questions that were not answered, they should look them up.

When an answer has been found and corrected, the card can be moved to the “correct answer” panel.



## Pre-Reading Questions












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1. Can you name some insects?
2. What are some things that insects have in common?
3. How are some insects different from other insects?
4. What is “complete metamorphosis?”
5. How is incomplete metamorphosis like complete and how is it different?
6. What are some insects that go through complete metamorphosis?
7. What are some insects that go through incomplete (or gradual) metamorphosis?

# Five Senses

*Objective Core Language Literature 4: Identify words and phrases in stories or poems that suggest feelings or appeal to the senses.*

Re-read the story and write down any words that relate to the five senses (if any). Can you identify which insect body parts are used?

Insect	Touch	Taste	Sight	Smell	Hearing
					
					
					
					
					
					
					
					
					
					
					

# Vocabulary Game

---

This activity is a very general idea and is designed to get children thinking of vocabulary words that will then be used as the beginning vocabulary list for a science lesson.

Select an illustration from the book and give the children a specific length of time (five minutes?) to write down all the words they can think of about the particular subject. If you do not have classroom sets of the book, it is helpful to project an illustration on a whiteboard. Check Web site ([www.ArbordalePublishing.com](http://www.ArbordalePublishing.com)) for book “previews” that may be used.

The children’s word list should include anything and everything that comes to mind, including nouns, verbs, and adjectives. At the end of the time, have each child take turns reading a word from his/her list. If anyone else has the word, the reader does nothing. However, if the reader is the only one with the word, he/she should circle it. While reading the list, one person should write the word on a flashcard or large index card and post it on a bulletin board or wall. At the end, the child with the most words circled “wins.” And you have a start to your science vocabulary list. Note: if a child uses an incorrect word, this is a good time to explain the proper word or the proper usage.

## Using the Words

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The following activities may be done all at once or over a period of several days.

- Sort vocabulary words into nouns, verbs, adjectives, etc. and write what they are on the backs of the cards. When the cards are turned over, all you will see is “noun,” etc. (these can then be used for the “silly sentences” on the next page).
- After the cards have been sorted, go over the categories to ensure that all cards have been placed correctly. (Mistakes are a great opportunity to teach!)
- Choose two words from each category and write a sentence for each word, using the word correctly.
- Write a story that uses at least ten vocabulary words from the word sort.
- Have children create sentences using their vocabulary words. Each sentence could be written on a separate slip of paper. Have children (individually or in small groups) sort and put sentences into informative paragraphs or a story. Edit and re-write paragraphs into one informative paper or a story.

# Word Bank

Adjective	Noun			Verb
aquatic	abdomen	entomologist	multiple	bask
brilliant	animal	exoskeleton	multiplication	dance
cold	ant	eye	nymph	eat
glowing	antennae	Firefly/lightning bug	pirate bug	flutter
gray	aphid	forewings	pollen	fly
green	arthropod	grasshopper	polliwog, tadpole	grow
hard	backbone	grub	proboscis	hatch
light	backward	head	product	hover
orange	bee	helicopter	pupa (pupae pl)	lay
outer	beetle	incomplete metamorphosis	repeated addition	migrate
oval	bug	Insect	sense	molt
purple	butterfly(ies)	invertebrate	simple eyes	pupate
red	caterpillar	ladybug	skunk	smell
shiny	chrysalis	larva (larvae pl)	species	swarm
spotted	cocoon	leg	spittlebugs	twinkle
thin	complete metamorphosis	lenses	stick bug	
three	compound eye	life cycle	thorax	
	cricket	luna moth	twig	
	dragonfly	maggot	wave	
	egg	monarch	wing	
		mouthparts	winter	

# Silly Sentence Structure Activity

*Objective Core Language Arts: Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences.*

*Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.*

*Use frequently occurring adjectives.*

*Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.*

1. Insects don't have \_\_\_\_\_<sup>noun</sup>s as we do. They have a hard \_\_\_\_\_<sup>adjective</sup> covering (called an exoskeleton) on the outside of their bodies.
2. All \_\_\_\_\_<sup>noun</sup>s are insects, but not all insects are bugs.
3. Adult insects have \_\_\_\_\_<sup>adjective</sup> body parts: \_\_\_\_\_<sup>noun</sup>, \_\_\_\_\_<sup>noun</sup>, and \_\_\_\_\_<sup>noun</sup>.
4. The head holds the \_\_\_\_\_<sup>noun</sup>s, \_\_\_\_\_<sup>noun</sup>, and \_\_\_\_\_<sup>noun</sup>s.
5. The \_\_\_\_\_<sup>noun</sup> is right behind the head. \_\_\_\_\_<sup>noun</sup>s and \_\_\_\_\_<sup>noun</sup>s attach to the thorax.
6. The \_\_\_\_\_<sup>noun</sup> is the back part of the insect and contains the heart and other major organs.
7. Most insects have \_\_\_\_\_<sup>adjective</sup> pairs of legs for walking, \_\_\_\_\_<sup>verb</sup>, and grabbing prey.
8. Most insects have one pair of \_\_\_\_\_. Insects "wave"<sup>noun</sup> their antennae to \_\_\_\_\_<sup>verb</sup> what is around them by smell.



# Word Families and Rhyming Words

*Language Arts, Reading Standards: Foundational Skills, Recognize and produce rhyming words.*

Word families are groups of words that have some of the same combinations of letters in them that make them sound alike...or rhyme. For example ad, add, bad, brad (Brad), cad, Chad, clad, dad, fad, gad, glad, grad, had, lad, mad, pad, plaid (silent 'i'), sad, shad, and tad all have an "ad" letter combination and rhyme.

- Find and write down rhyming words in the poem.
- Are they in the same word family?
- If so, circle the combination of letters that are the same.
- Can you think of more words in the word family?

Rhyming words are:

and

They are / are not from the same word family.

Other words that rhyme are:

Rhyming words are:

and

They are / are not from the same word family.

Other words that rhyme are:

Rhyming words are:

and

They are / are not from the same word family.

Other words that rhyme are:

Rhyming words are:

and

They are / are not from the same word family.

Other words that rhyme are:

# Insect Sayings

---

What do you think these insect sayings mean?

Which of these sayings are scientific?

Which of these saying refer to character and behavior?

**A fly won't fly into a closed mouth.**

**You can catch more flies with honey than vinegar.**

**Flies won't bother a boiling pot.**

**Bugs are bugs whether they bite or not.**

**Honey lies in every flower but it takes a bee to get the it out.**

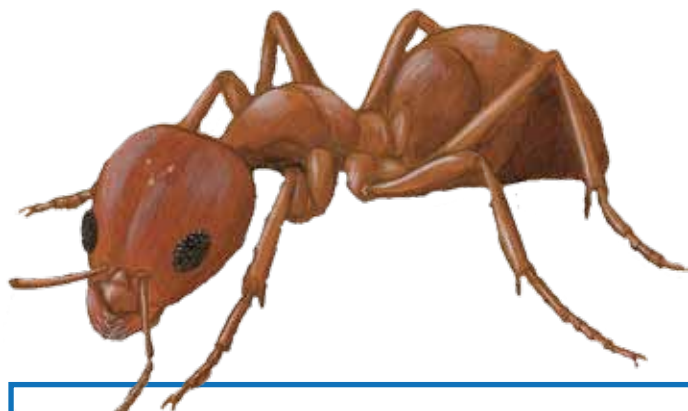
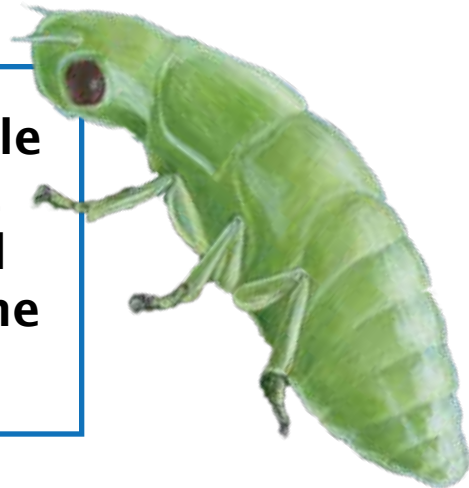
**Where there are bees, there is honey.**



**If you let the bee be, the bee will let you be.**

**As busy as a bee.**

**The big fish eat the little fish, the little fish eat the water-insects, and the water-insects eat the weeds and mud.**



**When the ant grows wings it is about to die.**

**Fireflies shine in motion.**



**The beetle is a beauty in the eyes of its mother.**



**One tiny insect can destroy a country.**



# Word Search

Find the hidden words. Even non-reading children can match letters to letters to find the words! Easy—words go up to down or left to right (no diagonals). For older children, identify the coordinates of the first letter in each word (number, letter).

	A	B	C	D	E	F	G	H	I	J
1	H	I	M	O	L	T	O	K	C	O
2	M	O	N	A	R	H	Y	L	O	S
3	B	U	G	N	P	O	S	I	C	T
4	A	A	R	T	H	R	O	P	O	D
5	N	S	U	E	F	A	A	S	O	R
6	C	A	B	N	L	X	O	T	N	A
7	E	Y	I	N	Y	M	P	H	S	G
8	P	U	P	A	U	O	C	O	Y	O
9	I	N	S	E	C	T	Y	E	Z	N
10	C	H	R	Y	S	A	L	I	S	O

INSECT

ANTENNAE

ARTHROPOD

CHRYSLIS

PUPA

NYMPH

THORAX

COCOON

MOLT

GRUB

FLY

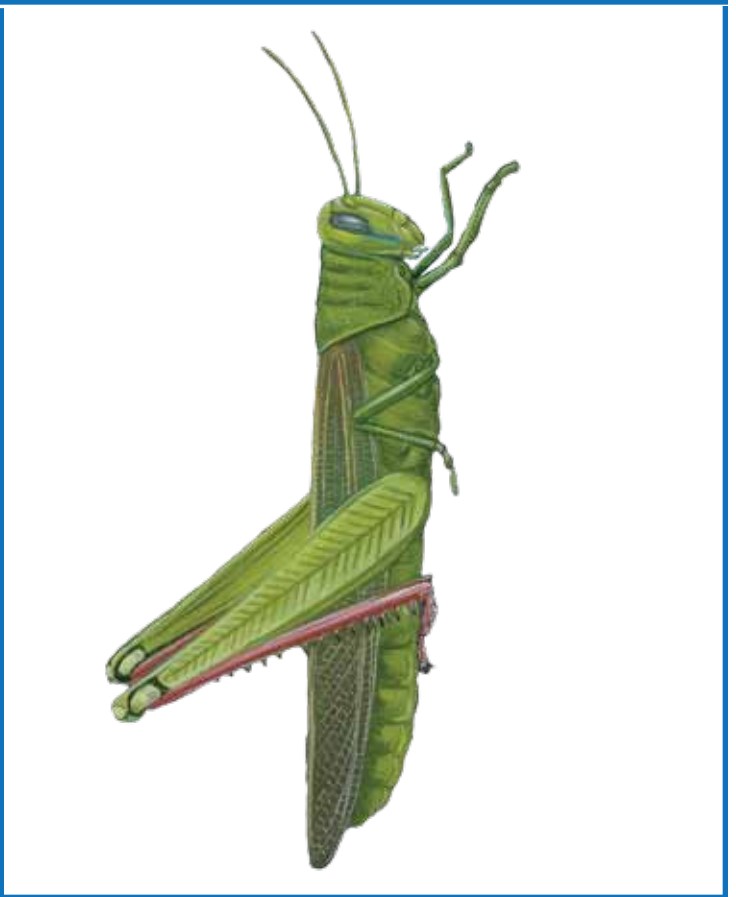
BUG

# Animal Sorting Cards









# Adaptations

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Adaptations help animals to live in their habitat: to get food and water, to protect themselves from predators, to survive weather, and even to help them make their homes. Here are a few different types of adaptations.

## Physical Adaptations

### body parts

teeth—depends on type of food eaten  
feet, flippers, fins—ability to move  
placement of eyes  
gills, lungs, or other—how does the animal get oxygen  
ears—or how the animal hears/senses

### body coverings

hair or fur  
feathers  
scales  
moist skin

### camouflage and protection

color of skin or pattern to blend into background  
mimicry: pretending to be something else to fool predators  
poisonous or stinky smells

## Behavioral Adaptations

instinct: behaviors or traits that the animals are born with  
learned behavior: traits that animals learn to improve their chances of survival or to make their life easier  
social groups versus solitary living  
communication with other animals  
defense/camouflage  
reaction to cycles (day/night, seasons, tides, etc.)  
migration: the seasonal movement of animals from one location to another  
hibernation: a long, deep sleep in which the animal's breathing and heartbeat are slower than usual

# Physical or Behavioral?

---

Circle whether you think the adaptation is physical (P) or behavioral (B):



1. P/B Fireflies produce light to find mates. If too many outside lights are on, they have trouble finding each other.



2. P/B To attract the ladies, grasshopper males create a mating call (some call a song). Long-horned grasshoppers and crickets rub their two wings together to make their beautiful sound, while other grasshopper species rub a wing against a leg.



3. P/B Different kinds of ladybugs have different numbers of black spots on their wings.



4. P/B Dragonflies have four oval-shaped wings. They can fly up to 35 mph (56 kilometers per hour)! They can also hover in one place like a helicopter, or fly backwards.



5. P/B Imagine having five eyes like ants! They have two large compound eyes made of many lenses and three simple eyes. The simple eyes are on the forehead in a triangle.



6. P/B Honey bees do special dances to let each other know where to find food. If flowers are near, they move in a circle. If flowers are far, they do a figure eight.



7. P/B Walking stick body parts look exactly like small twigs. When hungry enemies are near, these insects stay perfectly still.



8. P/B To avoid the cold winters, this type of butterfly migrates. Some travel 3000 miles (4828 km) to find a warm place to stay during the cold winter.



9. P/B A spittlebug hides its eggs in bubbles.



10. P/B Luna moths use coloring to blend into leaves to hide.

## **insect**

my definition

my drawing

## **complete metamorphosis**

my definition

my drawing



# incomplete metamorphosis

my definition

my drawing

# pupa

my definition

my drawing

# True or False?

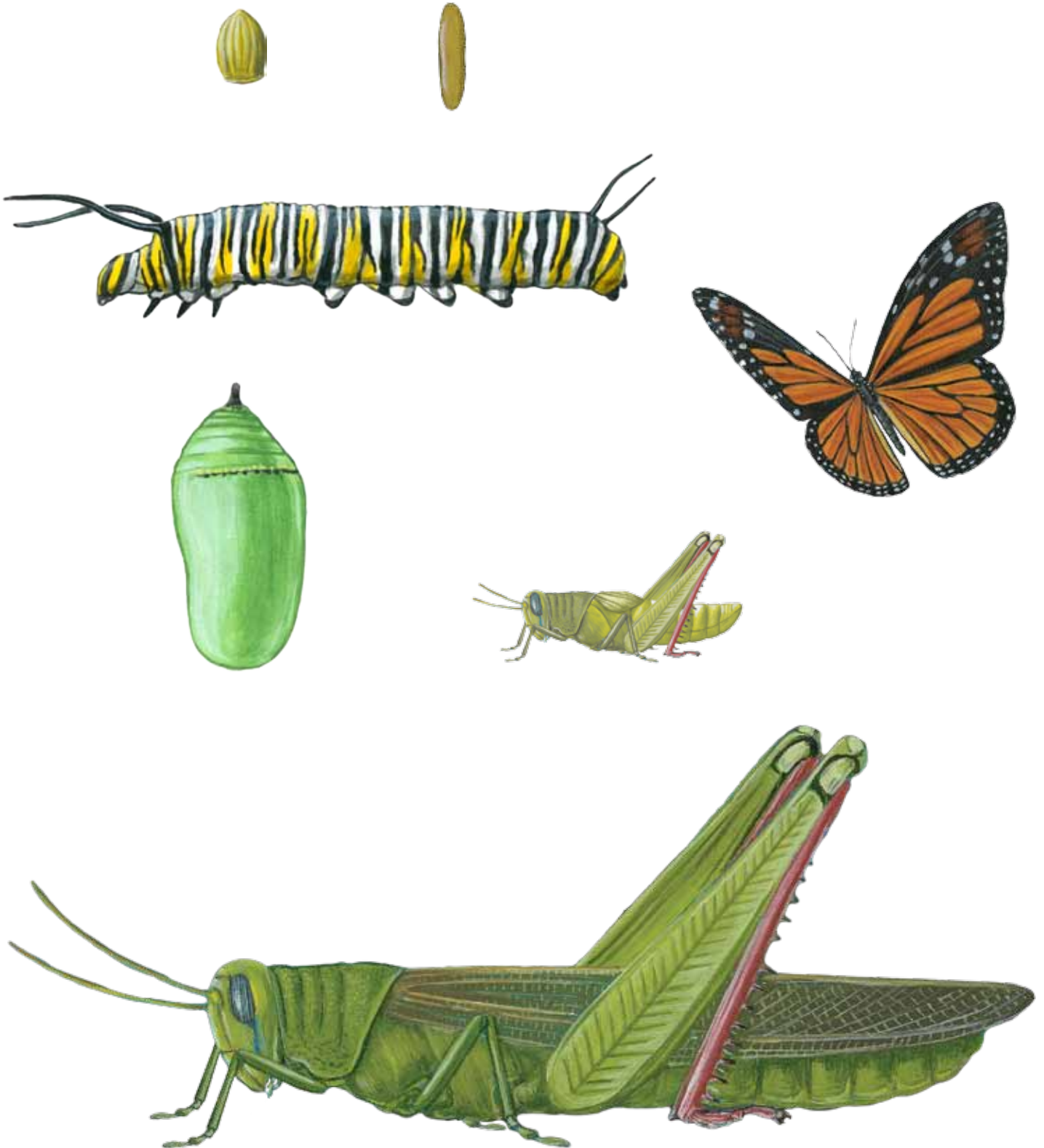
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Circle whether you think the statement is true or false:

1. T/F Honeybees gather honey from flowers.
2. T/F Bees make the buzzing sound with rapidly beating wings.
3. T/F When an insect molts, it sheds its outer covering and has a new one underneath. The new one will harden. Insects molt several times over their life.
4. T/F All insects are bugs.
5. T/F All ladybugs are female.
6. T/F All grasshoppers make “music.”
7. T/F Insects absorb oxygen through tiny tubes (trachea). They don’t breathe through lungs or gills.
8. T/F All insects fly.
9. T/F Lightning bugs flash their tails to attract females.
10. T/F Bright outside lights at night means that lightning bugs might have a hard time finding mates.

# Metamorphosis Life Cycle Sequencing

Print and cut out the different parts of the two metamorphosis life cycles, decide whether it represents a complete or incomplete (gradual) metamorphosis, and put into order.



# Multiplication and skip counting

Learning to multiply is just a quick way of adding by the same number or skip counting.

1	2	3	4	5	6	7	8	9	10...
---	---	---	---	---	---	---	---	---	-------

Multiplying by 1 is easy! The answer's right in front of you—the number you're multiplying, times one.

2	4	6	8	10	12	14	16	18	20
---	---	---	---	----	----	----	----	----	----

When you multiply by 2, simply add the number to itself. ( $5 + 5 = 10$ ). It is skip counting by 2! Will the answer (product) be even or odd?

3	6	9	12	15	18	21	24	27	30
---	---	---	----	----	----	----	----	----	----

To multiply by 3, add the number three times. ( $4 + 4 + 4 = 12$ ). It is skip counting by 3!

4	8	12	16	20	24	28	32	36	40
---	---	----	----	----	----	----	----	----	----

To multiply by 4, double your number. Then double it again!  $8 \times 2 = 16$   $16 \times 2 = 32$

5	10	15	20	25	30	35	40	45	50
---	----	----	----	----	----	----	----	----	----

To multiply by 5, simply skip count by 5's.

6	12	18	24	30	36	42	48	54	60
---	----	----	----	----	----	----	----	----	----

To multiply by 6, first multiply by 3, then double your answer.  $4 \times 3 = 12$   $12 \times 2 = 24$

7	14	21	28	35	42	49	56	63	70
---	----	----	----	----	----	----	----	----	----

To multiply by 7, multiply the number by 5 and multiply the number times 2, then add those two numbers together.  $8 \times 5 = 40$   $8 \times 2 = 16$   $40 + 16 = 56$

8	16	24	32	40	48	56	64	72	80
---	----	----	----	----	----	----	----	----	----

To multiply by 8, double your number 3 times.  $3 \times 2 = 6$   $6 \times 2 = 12$   $12 \times 2 = 24$

9	18	27	36	45	54	63	72	81	90
---	----	----	----	----	----	----	----	----	----

To multiply by 9, put a zero on the end, then subtract the number you are multiplying.

10	20	30	40	50	60	70	80	90	100
----	----	----	----	----	----	----	----	----	-----

Multiplying by 10 couldn't be easier. Just put a zero on the end!

# Skip Counting Chart

Pick a number and color or mark (M&Ms or small candies work well and can then be eaten) a pattern (skip counting or another number pattern). Have someone else guess the pattern.

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	38	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99



# Multiplication Table

Pick a number and color or mark (M&Ms or small candies work well and can then be eaten) a pattern (skip counting or another number pattern). Have someone else guess the pattern.

X	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

# Square Numbers

Numbers make fun patterns. What do you notice about a pattern when a number is multiplied by itself?

X	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

# Map Activity

Using these maps as a reference, color the areas where these animals live on the blank map (in appendix). Click on the animal name to go to the map source.

Do any animals live in the same state or province as you?



Fireflies



Spittlebugs



Walking sticks



luna moth

# Multiply on the Fly





# Multiply on the Fly



# Multiply on the Fly





# Glossary

Word	Definition	Part of Speech	Spanish
abdomen	the back of the three main body divisions of an insect: contains major organs	noun: body part	abdomen
adult	the final stage of an animal that goes through metamorphosis	noun	adulto
animal	any member of the kingdom Animalia: can move voluntarily, get and eat food, and respond to stimuli	noun	animal
ant	a small insect that lives in colonies, known for workers	noun: animal	hormiga
antennae	long, thin, feelers from an insect's head that inform it about the feel, sound, taste, smell, temperature, and humidity in the world outside of its skeleton (plural is antenna)	noun: body part	antena
aphid	small, plant-eating insects	noun: animal	áfido
aquatic	an organism living and growing in water	adjective	acuático
arthropod	animals with exoskeletons, jointed legs, and segmented bodies (includes insects, spiders, crustaceans, centipedes, and millipedes)	noun: classification	Artrópodo
backbone	the vertebrae forming the axis of the skeleton and protecting the spinal cord	noun: body part	columna vertebral, espina dorsal
backward	the area in the back of a house	noun	atrasado
bask	to lie in or be exposed to a pleasant warmth (sunshine)	verb	tomar el sol
bee	a small flying insect	noun: animal	abeja
beetle	a winged insect with a hard smooth back	noun: animal	escarabajo
brilliant	extremely bright	adjective	brillante
bug	a subgroup of insects	noun: animal	bicho

Word	Definition	Part of Speech	Spanish
butterfly(ies)	a type of insect, diurnal, often with bright colored wings, known for their "fluttering"	noun: animal	mariposa
caterpillar	larva of a butterfly or moth	noun: animal	oruga
chrysalis	the pupa stage of a butterfly	noun	crisálida
cicada	a type of insect related to grasshoppers, known for the sound the males make	noun: animal	cicádidos
cockroach	a type of insect, commonly considered to be a pest	noun: animal	cucarachas
cocoon	the pupa stage of a moth	noun	capullo
cold	(Dolch) Sight word, grade 2	adjective	frío
complete metamorphosis	a series of changes in the body form during their life cycle	noun	metamorphosis completa
compound eye	an eye consisting of many individual elements (like ours)	noun: body part	ojo compuesto
cricket	a leaping insect; males make music by rubbing front legs and wings together	noun: animal	grillo
dance	move up and down lightly and quickly	verb	bailar
dragonfly	an insect with a long, colorful body and two sets of clear wings	noun: animal	libélula
eat	to bite and swallow food as nourishment	verb	comer
egg	the roundish reproductive object produced by bird, reptile, and a few mammal females	noun	huevo
entomologist	a scientist that studies insects	noun	entomología
exoskeleton	the hard covering system on the outside of an insect or other invertebrate	noun: body part	esqueleto exterior
eye	the organs with which we see; 2) the center of a tropical storm or hurricane, with a roughly circular area of light winds and rain-free skies.	noun	ojo

<b>Word</b>	<b>Definition</b>	<b>Part of Speech</b>	<b>Spanish</b>
firefly/ lightning bug	a type of insect that flashes light at night (to attract a mate)	noun: animal	luciérnagas, bichos de luz
flutter	to move back and forth	verb	aletear
fly	(Dolch) Sight word, grade 1	verb	volar
forewings	the two upper wings (closest to the head) in flying insects like adult butterflies or moths	noun	alas anteriores
glowing	shining with a soft, warm light	adjective	incandescente
grasshopper	a green insect with long back legs used for jumping	noun: animal	saltamontes
gray	a color	adjective	gris
green	(Dolch) Sight word, grade 2, a color	adjective	verde
grow	to get bigger in size (Dolch) Sight word, grade 3	verb	crecer
grub	the larva stage of beetles, bees, and wasps	noun: animal baby	larva
hard	not soft, solid and firm to the touch	adjective	duro
hatch	to emerge from an egg, pupa, or chrysalis	verb	incubar
head	the front body part of insects; has mouthparts, eyes, and antennae	noun: body part	cabeza
helicopter	an aircraft with large metal blades on top that spin and lift it into the	noun	helicóptero
honey bee	a type of bee that is known for making honey	noun: animal	abejas melíferas
hover	to flutter about in one area	verb	cernerse, suspender (suspend)
incomplete metamorphosis	life cycle with gradual changes through three stages: egg, nymph, and adult	noun	metamorfosis incompleta

<b>Word</b>	<b>Definition</b>	<b>Part of Speech</b>	<b>Spanish</b>
Insect	a six-legged arthropod, usually with a hard exoskeleton and three main body parts	noun: classification	insecto, bicho
invertebrate	animal without a backbone; about 97% of all known species are invertebrates	noun: classification	invertebrado
ladybug	small round bright-colored red and black-spotted beetle that usually feeds on aphids and other insect pests	noun: animal	mariposa
larva (larvae pl)	the immature free-living form of most invertebrates, amphibians, and fish	noun: animal baby	larva
lay	to produce (an egg)	verb	poner
leg	"a structure in animals used for locomotion "	noun: body part	pierna, pata
lenses	the part of the eye behind the pupil that bends light to produce an image	noun: body part	cristalino
life cycle	a series of stages that occur during the lifetimes of all organisms	noun	ciclo de vida
light	pale in color, well-lit; 2) not heavy	adjective	claro
luna moth	a large lime-green moth found in North America	noun: animal	actias luna
maggot	a larva without legs and without well-developed head capsule	noun	gusano
migrate	to travel over a distance with the change of season (or other cycle) or to find food, breed, or nurse young	verb	emigrar
molt	to shed a coat: fur, feathers, skin, or hard outer covering	verb	mudar la piel

Word	Definition	Part of Speech	Spanish
monarch	a common butterfly that lays eggs in milkweed and the caterpillars and adult butterflies use the milkweed poison to protect themselves; migrators	noun: animal	monarca
mouthparts	parts of an animal used as a mouth (adaptation)		aparato bucal
multiple	the product (answer) one whole number multiplied by another whole number	noun	múltiplo
multiplication	a mathematical operation to combine groups of equal amounts; repeated addition; the inverse of division	noun	multiplicación
nymph	immature form of insects that resembles the adult without wings	noun	ninfa
orange	a color	adjective	naranjado, anaranjado
outer	on or around the outside of something, far from the center of something	adjective	externo
oval	a long narrow circle shape	adjective	óvalo
pirate bug	small, oval insects that feed on other bugs and insect eggs	noun: animal	chinche pirata
pollen	fine powder-like (often yellow) grains made by seed plants for fertilizing	noun	polen
polliwog, tadpole	the larva stage of a frog	noun: animal baby	Sapo: Renacuajo
proboscis	long drinking tube used by insects like the butterfly	noun: body part	proboscis
product	The number (answer) that is obtained when two or more numbers (factors) are multiplied.	noun	producto

Word	Definition	Part of Speech	Spanish
pupa (pupae pl)	a stage in the life cycle of an insect between larvae and adult; the pupa appears dormant but inside the protective coating, changes are taking place, moth pupa=cocoon, butterfly pupa=chrysalis	noun	pupa
pupate	to turn into and exist as a pupa	verb	pupar
purple	a color	adjective	púrpura
red	a color, (Dolch) Sight word, PreK-K	adjective	rojo/a
repeated addition	addition of equal groups; often used to model the concept of multiplication.	noun	suma repetida
sense	Touch, taste, hearing, smell, sight.	noun	sentidos
shiny	a bright surface that reflects light	adjective	brillante
simple eyes	eyes that can only sense light or dark	noun	ojos simples
skunk	a small black and white animal that protects itself by emitting a stinky smell by lifting its tail when frightened	noun: animal	zorrillo
smell	to sense something by aroma	verb	oler
species	a group of organisms different from all others; can't breed with other groups	noun: classification	especies
spittlebug	a type of insect that spits or blows bubbles to protect nymphs	noun: animal	salivazo
spotted	having spots	adjective	moteado
stick bug	also called walking stick bug, a type of insect that looks like a twig or stick	noun: animal	insectos hoja



<b>Word</b>	<b>Definition</b>	<b>Part of Speech</b>	<b>Spanish</b>
swarm	to move in a large crowd	verb	enjambrar
thin	narrow, skinny	adjective	delgado
thorax	the middle section of an insect, where its six legs and wings attach to the body	noun: body part	tórax
twig	small branch	noun: plant part	ramita
twinkle	uneven flashing of brightness	verb	brillar
walking stick	a type of insect that looks like a stick for camoflauge	noun: animal	insecto de palo, insecto palo
wave	the repeating and periodic disturbance that travels from one place to another; ocean/ lake waves carry through water, sound waves carry through space, seismic waves carry through the ground	noun	ola (water) (onda=radio & seismic)
wing	the two forelimbs of most birds and of bats, like arms, that are specialized for flight, many insects have wings, butterflies have 4	noun: body part	alas
winter	the coldest season of the year, precipitation in some areas freezes to snow or ice	noun: time/ week/ month/ season	invierno

# Answers

## Silly Sentences

1. Insects don't have backbones as we do. They have a hard outer covering (called an exoskeleton) on the outside of their bodies.
2. All bugs are insects, but not all insects are bugs.
3. Adult insects have three body parts: head, thorax, and abdomen.
4. The head holds the eyes, antennae, and mouth parts.
5. The thorax is right behind the head. Wings and legs attach to the thorax.
6. The abdomen is the back part of the insect and contains the heart and other major organs.
7. Most insects have three pairs of legs for walking, swimming, and grabbing prey.
8. Most insects have one pair of antennae. Insects "wave" their antennae to sense what is around them by smell.

## Word Search

	A	B	C	D	E	F	G	H	I	J
1	H	I	M	O	L	T	O	K	C	O
2	M	O	N	A	R	H	Y	L	O	S
3	B	U	G	N	P	O	S	I	C	T
4	A	A	R	T	H	R	O	P	O	D
5	N	S	U	E	F	A	A	S	O	R
6	C	A	B	N	L	X	O	T	N	A
7	E	Y	I	N	Y	M	P	H	S	G
8	P	U	P	A	U	O	C	O	Y	O
9	I	N	S	E	C	T	Y	E	Z	N
10	C	H	R	Y	S	A	L	I	S	O

INSECT	9A	ANTENNAE	2D	ARTHROPOD	4B
CHRYSALIS	10A	PUPA	8A	NYMPH	7D
THORAX	1F	COCOON	1I	MOLT	2C
GRUB	3C	FLY	5E	BUG	3

### Physical or Behavioral Adaptations

1) Physical, 2) Both, the act of making the music is behavioral but the body parts that actually make the music is physical. 3) Physical, 4) Physical, 5) Physical, 6) Behavioral, 7) Physical, 8) Behavioral, 9) Both, 10) Physical

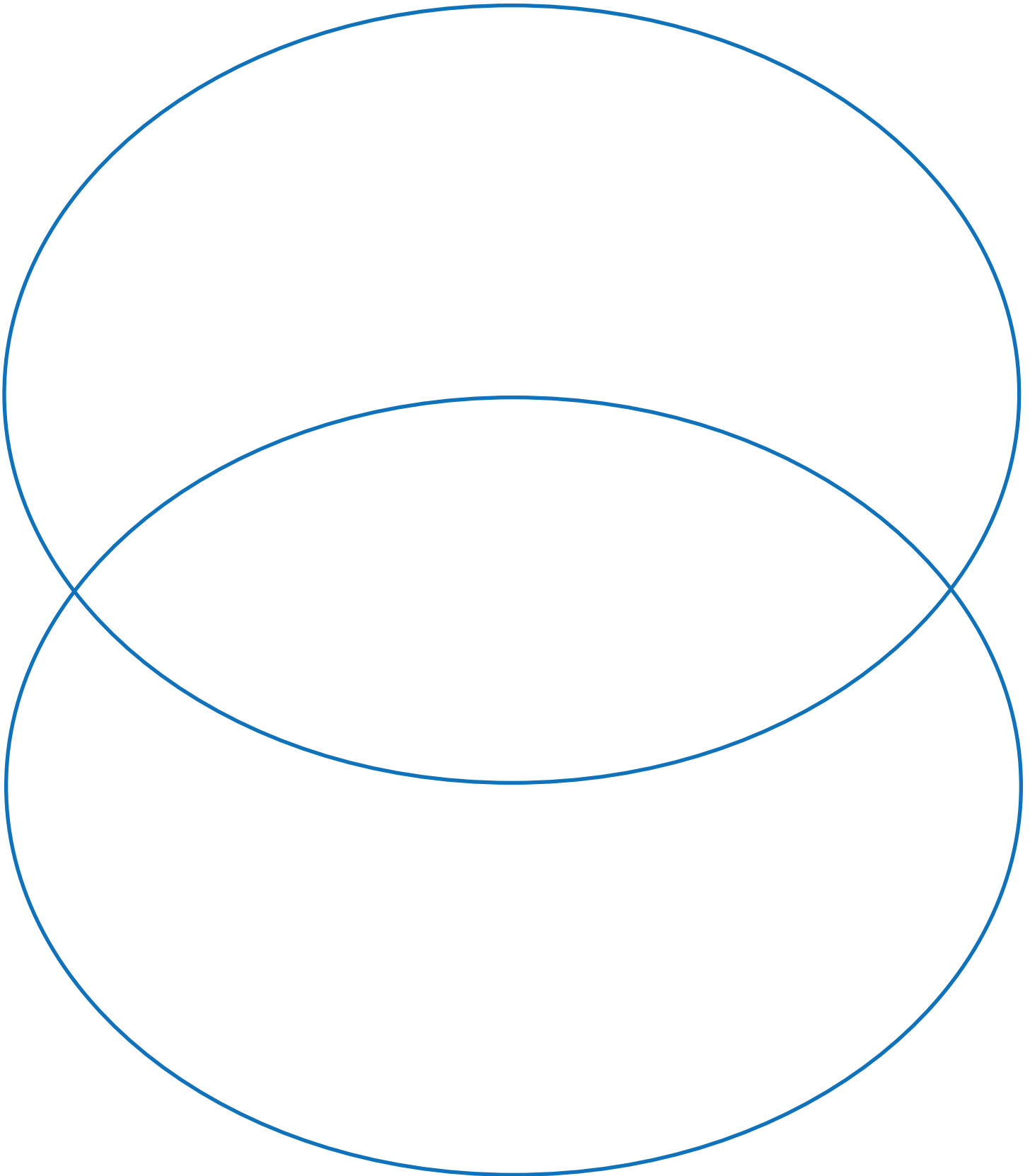
### True or False

- 1) False, bees collect nectar which the bees then make into honey.
- 2) True,
- 3) True,
- 4) False, bugs are a type of insect. Saying that all insects are bugs would be like saying that all mammals are dogs. We (humans) are mammals but we are not dogs.
- 5) False, there have to be male ladybugs too.
- 6) False, it is just the males that make music to attract females; they make the sounds by rubbing wings or wings and legs together—they don't sing,
- 7) True,
- 8) False,
- 9) False, they don't have tails but they do light up their abdomen,
- 10) True



# Appendix B—Venn Diagram

Compare and contrast two different insects of your choice.



# Appendix C—U.S. Map

