**Insect Unit**

**Goals and Objectives**

**Goals**
To expand students' knowledge of the life cycle of insects, insects' diet and habitat, and the body parts of insects.

**Theme Objectives**

* Learn about a variety of insects
* Learn about the life cycle of insects
* Identify and name insect body parts
* Learn the concept of camouflage
* Learn about insect habitats
* Learn about insect diets

**Skill Objectives**

 **Language Arts**
Students will...

* be able to record descriptive observations
* make connections between sounds, words, and pictures
* develop vocabulary
* be exposed to a variety of literature
* continue to develop listening skills
* be encouraged to sequence a story
* be able to make thoughtful predictions

**Math**
Students will...

* classify and sort items into categories
* identify symmetrical objects
* count objects

**Science**Students will...

* observe similarities and differences
* learn what insects need to survive
* understand the life cycle of insects
* be familiar with the anatomy of insects

**Social Studies**Students will...

* be able to identify insects in their community
* be introduced to people in their community who have knowledge of insects

**Health** Students will...

* learn about their lifecycle
* identify parts of the human body

**Art**Students will...

* create original designs
* mix colors
* use a variety of art materials
* express ideas through artistic expression

**Music and Movement**Students will...

* observe how insects move
* develop control over large muscles
* develop fine motor control
* listen to a variety of sounds
* make distinctions between different sounds
* respond to the tempo of a song

**Technology**Students will...

* be provided with opportunities to use a variety of technology
including computers to watch videos and listening tools
* understand how technology affects their lives

**Unit Concept Map**



**Here Come the Insects!**

**Teacher:** Christina Bower

**Grade Level: Young’s**

**Subject**: Science/ Language Arts

**Objective: students will be aware that they will be learning about insects over the next six weeks.**

**Materials:**

* **Various books about insects**
* **Whiteboard/markers**
* **Insect alphabet booklet (one for each student)**
* **“Have You Seen Bugs?” - Joanne Oppenhiem and Ron Broda**

**Introduction:**

**Have students sitting in circle spots. Explain to students that they will be learning about something very exciting for the next six weeks. Unveil the bookshelf to the students (bookshelf will be full of insect books). Ask students if they can guess what it is they will be learning about just by looking at the books on the bookshelf. Explain to students that they will be learning about all different kinds of insects.**

**Read the story “Have You Seen Bugs?” written by Joanne Oppenhiem and Ron Broda**

**After the read aloud make a KWL chart on chart paper. Ask students if they have seen insects and what they know about insects. Fill this in the know section of the KWL chart. Ask students what they want to learn about insects. Place their questions in the Want to learn section of the KWL chart.**

**K W L**

Complete the chart as students respond to questions. Once the chart has been completed, explain to students that throughout the next six weeks they will be creating their very own insect alphabet book. This book will be focused on lower case letters of the alphabet. Show students the alphabet books and explain that each day there will be a word for each letter and they will be copying the word from the board into their books and drawing a picture to represent the word provided. Tell students that today they will be designing a cover for their books. Explain to them that they will need to write their name on the line provided and then

**Assessment:** Informal assessment

**Head, Shoulders, Knees and Toes**

**Teacher:** Christina Bower

**Grade Level: Young’s**

**Subject**: Science/Language Arts/Art/ Health

**Objective: students will identify the body parts of humans and compare them with the body parts of a cricket. Students will learn proper observational skills and how to properly use a hand lens.**

**Materials:**

* **Butcher Paper**
* **“A Very Quiet Cricket” – Eric Carle**
* **Crickets**
* **Hand lens (4)**

**Introduction:**

Play the game ["Simon Says"](http://insected.arizona.edu/lesson_01/bodysong.htm) using the directions to touch: head, shoulders, chest, neck, elbow, etc. (body parts). Keep the game at a lively pace and observe students to see if they touch correct body parts. Following the game, ask one student to volunteer to lie down on a large piece of butcher paper or craft paper. Teacher traces his/her outline. Ask the students to add eyes, other features and to name the body parts they know. Label the drawing as the children give responses.

# Simon Says

(Motions for Cricket Body Parts)

Head (touch your head)
Thorax (touch your chest)
Abdomen (touch your stomach)
Six Legs! (hold three fingers out from each hand and place hands along your sides)
Eyes (touch your eyes)
Mouth (touch your mouth)

Antennae (place index fingers sticking up from the top of your head)
Wings (fold arms so elbows are sticking out from your sides and flap them up and down like wings)

Read and discuss “A Very Quiet Cricket” by Eric Carle.

After read aloud ask students to find a spot and lay down and close their eyes. “Imagine we are outside at night in the country. It’s cool but not too cold and we are lying in sleeping bags around a fire. It is very quiet. We hear a sound. Listen carefully. Where have we heard that sound before?” ( Play sound from a very quiet cricket book) “Wake up!”

* Where have we heard that noise before? Who is making that noise?
* Unveil cricket cage to students

Explain to the students that today they will observe a cricket and learn about its body parts. Show the students the crickets in the habitat container, explain where they came from (pet store, captured outdoors), and that the crickets will be kept in their habitat container at all times. Show the student’s one cricket in a small plastic tumbler (with a lid with holes) and demonstrate techniques for observation, and use of the hand lens. (Start with the lens at your eye and then slowly move it towards the insect.)

Explain to students that they will have a chance to observe the cricket when they go to centers. Give each student at center a cricket and one hand lens. As the students observe their crickets, ask them questions to help them to focus: "How does the cricket move? How many legs can you see? Does a cricket have eyes? Can you see wings on the cricket? Does the cricket have body sections like a human's head, chest and stomach? etc." Following the observation time, collect the crickets and return them to the habitat container. (The students should be cautioned not to remove the lid.)

**Assessment:**

* Assess whether or not the students are able to identify different parts of the human body
* Observe what the students’ cricket drawing looks like.  This will provide a view of the student’s ability to draw from observation (ex/ how many legs did the student draw, where did he/she place the antennae)

**Insect Body Parts**

**Teacher:** Christina Bower

**Grade Level: Young’s**

**Subject**: Science/ Language Arts/Health

**Objective:**

**Materials:**

* **“Bugs Are Insects” – Anne Rockwell**
* **Large drawing of cricket unlabeled**
* **Markers**
* **Cricket labeling worksheet**
* **Journals**

**Introduction:**

**Read and discuss “Bugs are Insects” by Anne Rockwell. Stop as often as possible during the read aloud to have students recall information from their observations of crickets. Be sure to stop and discuss what an exoskeleton is and ask students if they have an exoskeleton. Once the book has been read and discussed in great detail, tell students that today we are going to be entomologists. Tell students that entomologists are scientists who study insects. Explain to students that our first job as an entomologist is to label a diagram of an insect and because we have already became experts in observing a cricket; we will now label a diagram of a cricket.**

**Ask students why it is important to know and understand the parts of an insect. Explain to students that if we did not know what body parts an insect has than we would not be able to classify it as an insect. We may assume it is a bug, and while all bugs are insects, not all insects are bugs!**

**Show students the large diagram of a cricket. Ask students to recall their observations of the cricket from the previous day and help to label the drawing. As students mention body parts, label them. This is also a good time to explain the function of the body parts.**

**Explain to students that they will have an opportunity to label their own cricket diagram during centers. Remind students to use the labeled diagram to assist them while labeling.**

***Anatomy to Discuss:***

***Head: the head is for eating, sensing things and gathering information.***

***Thorax: all wings and legs are attached to the thorax. This makes the thorax full of muscle.***

***Abdomen: This body part contains all the organs for breathing and digestion.***

***Compound Eyes: can have several thousand lenses***

***Legs: All insects have 6 legs. Legs look different depending on their purpose (grasping, capturing, jumping, digging, etc)***

***Antennae: The antennae are located on the head. They are used to feel, smell, and even taste.***

***Mouthparts: There are many different types of mouthparts including chewing, sucking, cutting and more. The cricket has chewing mouthparts.***

***Wings: Most adult insects have 2 pairs of wings. Other insects may only have 2 wings.***

***Exoskeleton: Insects don’t have bones like we do. Instead they have something called an*** *exoskeleton which is the hard outer shell (outer skeleton) that protects their organs and prevents them from drying out in the hot weather. The exoskeleton does not grow with the insect. Instead, the insect sheds the exoskeleton when it is ready to grow, and after a short period of time it is replaced with a new one.*

***Extension: Exoskeleton***

**Show students a small paper bag and tell them that it represents an exoskeleton of an insect. Show them a balloon and tell them that it will represent the inner body of an insect. Place the balloon in the paper bag with the neck of the balloon facing out so that you can blow on the balloon while it is in the bag. Twist the lunch bag shut over the stem of the balloon, but not too tight so as to get air into the balloon. Start blowing on the balloon while holding the bag shut around it. Eventually the balloon will get too big for the bag and the bag will either rip or pop. Explain to students that the same thing happens to an insects exoskeleton. As the insect grows it gets too large for its exoskeleton, causing it to split open so that the insect can crawl out of its old exoskeleton. This process of shedding is called molting.**

At centers students will work individually to label the diagram of a cricket. Once they have labeled all of the parts and titled their diagram they can colour – time permitting.

**Assessment:**

* Assess whether or not the students are able to correctly label the diagram of a cricket

**Am I an Insect?**

**Teacher:** Christina Bower

**Grade Level: Young’s**

**Subject**: Science/ Language Arts/ Music

**Objective:**

**Materials:**

* **“Head, Thorax, Abdomen” Song**
* **T-chart on whiteboard with insect/non-insect columns**
* **Pictures of insects/non-insects**
* **Is it an insect? Worksheet**
* **Word of the day - cricket**

**Procedure:**

Show the students the two large labeled drawings (insect and child) and have them compare the human body and the insect body. What is similar and what is different. Record information on butcher paper. Discuss with the students the importance of their bodies, and all of the things they can do. Explain that: "Insects, like the crickets we have been observing, have special bodies that help them to do all the things they have to do." Review the terminology of the human body parts vs. cricket body parts. **Tell students that they will pretend to be a cricket, and the Simon Says game will be played using cricket body parts. Simon says: “Touch your thorax,” etc. Once students understand the vocabulary used for insect body parts, introduce the head and shoulders song replacing the words with insect anatomy.**

**Head, thorax, Abdomen, Abdomen**

***Head, Shoulders, Knees and Toes, Knees and Toes***

**Head, thorax, Abdomen, Abdomen**

***Head, Shoulders, Knees and Toes, Knees and Toes***

**Antennae, six legs and an exoskeleton**

***Eyes, and ears, and mouth, and nose***

**Head, thorax, Abdomen, Abdomen**

***Head, Shoulders, Knees and Toes, Knees and Toes.***

**Explain to students that this song will help them remember what an insect is and will assist them in classifying insects. Tell students that today we will be classifying different insects. We will be sorting pictures and determining which groups they belong in.**

**Draw student’s attention to T-chart drawn on whiteboard. Explain that there are two columns. One column is for insects and one column is for non-insects. Tell students that you have many pictures and that you are not sure which columns they belong in. Ask students if they think they can help. Show pictures to students one at a time. Call upon students sitting quietly and raising their hand. As students place pictures in specific columns ask them to explain why they belong in the columns they were placed in.**

**Tell students that today they will use their entomologist skills in sorting pictures. Their job is to identify which pictures on their worksheet are insects and which pictures are not.**

Divide students into groups and have groups go to an assigned center.

At center students will work individually to identify which pictures on their worksheet are insects and which ones are not. Students will colour in the pictures they know are insects.

**Assessment:**

* Watch as the students sort the insects by coloring.  Assess their ability to choose which ones to colour and which ones to leave blank.

**Butterfly Lifecycle: Complete Metamorphosis**

**Teacher:** Christina Bower

**Grade Level: Young’s**

**Subject**: Science/ Language Arts/Art/Health

**Objective: Students will be able to**

* **identify the lifecycle of a butterfly**
* **create a model of a complete life cycle**
* **make predictions**
* **demonstrate the correct order of a butterfly lifecycle**
* **demonstrate the correct order of a mealworm lifecycle**
* **compare the lifecycle of a mealworm to the lifecycle of a butterfly**

**Materials:**

* **“The Very Hungry Caterpillar” – Eric Carle**
* **Lifecycle sequencing cards**
* **Pictures of newborn, child, adult**
* Green construction paper
* Rice/white beans for eggs
* 12 twigs – for cocoon
* 12 cotton balls – for cocoon
* Pompoms – for caterpillar
* Butterfly pasta – for butterfly
* Pen
* Glue
* Words printed on whiteboard for students to see: Eggs, Caterpillar, Chrysalis, Butterfly

**Introduction:**

Invite students to circle and ask: “Who can remember what a lifecycle is?” “What are the three stages of a cricket’s lifecycle?” Reactivate prior knowledge.

Show students a picture of a butterfly. Ask them if they know what the picture is of. Is a butterfly an insect? How do we know? Ask the students what they know about butterflies. Have they ever seen one? Have they ever touched one? What did it look like? Was it colorful?

Show students a picture of a caterpillar. Ask them if they know what the picture is of. Does a caterpillar have 6 legs? Is it an insect? But I thought all insects had 6 legs? What do caterpillars look like? What do they feel like? Are they furry? Slimy?

Explain to students that today we will be learning about the lifecycle of a butterfly. The butterfly’s lifecycle is different from a cricket’s lifecycle. Explain to students that a butterfly also goes through many stages just as a cricket does and just as we do. A butterfly’s lifecycle is called complete metamorphosis.

Tell students that we are going to watch a video that will help us better understand the changes that occur during a butterflies life. Play the video for students: <http://www.youtube.com/watch?v=SoHCXR2MsSo&feature=related>

**After the read aloud ask students if they can name the different stages in a butterflies life. Can the identify the four stages? Show them sequencing cards of the 4 stages and ask volunteers to put them in order as they learned in the video.**

***Egg****- the first part of an insect's life starts when an adult insect lays an egg.*

***Larva****-the egg hatches and produces a larva. Larva is a wormlike animal that looks very different from the adult. Does a butterfly look like a caterpillar? When the larva emerges from the egg it begins eating immediately. What does it eat? It eats its own egg! The larva will then feed on different sources of nutrition that are near the location where it hatched from its egg. Most larva will shed their skin (molt) and then re-grow their skin several times before they move to the pupa stage.*

***Pupa****-after the larva has eaten the right amount of food it is ready to rest from eating as a pupa. The larva surrounds itself with a new outer skin or husk. There are different types of pupa for each insect. Inside the pupa the magic is happening. The muscles, nerves and other structures are dissolved and new limbs, muscles and nerves are formed. Pupa often blend into their surroundings for protection.*

***Adult****-when the insect emerges from its pupa it has all the features of the adult insect that we are familiar with. The insect leaves the shell of the pupa by splitting it open or breaking through. Once the adult is totally free from the pupa it begins looking for a mate so the life cycle of the insect can begin again.*

**Have students stand up and show the lifecycle of a butterfly through movement.**


1)  Ask the children to find an open space where they will have plenty of room.
2)  Have them curl into a small ball to represent an egg.  During this time the should lay very still.
3)  Ask the students to "hatch" from the eggs and become caterpillars.  Have them wiggle around the floor just as a caterpillar would.
4)  Instruct the students to "wrap" themselves up into a chrysalis.
5)  Ask the students to slowly crawl out of their chrysalises and dry their wings by slowly moving their arms back and forth.
6)  Tell the children that they are now ready to fly.  Allow them to "flutter" around the room, testing out their new wings.

**Ask students what differences they notice about the lifecycle of a cricket than that of a butterfly. Are the lifecycles the same? Different? How? Make a comparison chart on chart paper.**

**Bring the mealworms to circle. Ask students if they think a mealworm may change just as a caterpillar does? Explain to students that a mealworm looks like a worm but it is not really a worm. It goes through the same stages of a lifecycle as a butterfly. Ask students to predict what they think a mealworm will be as it goes through the life cycle stages. Explain to students that a mealworm will become a beetle. Ask students what stage the mealworm may be in at the current time (larva). Show students sequencing cards for the lifecycle of a beetle. See if students can put the lifecycle of a beetle in order without any assistance.**

**\*\* A meal worm is the larva of a beetle just as a caterpillar is to a butterfly\*\***

**Tell students that today we will be making our very own diagram for the lifecycle of a butterfly. Demonstrate the procedure to the students.**

**Step One:**

Trace a green leaf cutout on green construction paper. Cut it out.

**Step Two:**

Discuss with students each item and what cycle it may represent. Discuss with students the order they may use these items in.

Use rice or a white bean for the egg.

Use pompoms for a caterpillar.(larva)

Use a twig with a cotton ball stretched out for cocoon (pupa)

Use butterfly pasta – for pasta (can colour with markers).

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Have students review the correct order of the butterfly lifecycle stages upon completion to determine understanding.

**Assessment:** Observe students lifecycle activity to determine their understanding of the 4 stages of complete metamorphosis.

**Insect Habitats**

**Teacher:** Christina Bower

**Date Taught:**

**Grade Level: Young’s**

**Subject**: Science/ Language Arts/Social Studies

**Objective: Students will be able to**

* **Understand what habitats are and where different insects live**
* **Observe that insects need food, air, and space to grow**

**Materials:**

* **3 habitat posters**
* **Animal cards (on index cards)**

**Introduction:**

Reactivate student’s prior knowledge. Ask them if they remember the lifecycle of a caterpillar. How many stages are in the caterpillar’s life cycle? Can they name any stages? Use creative movement to demonstrate the stages if students do not understand.

Ask students if they know what a habitat is. Discuss that a habitat is a place where someone or something lives. Ask students where there habitat is? Discuss what we need in our habitats. Ask students what they need to grow (shelter, water, food). Brainstorm ideas as a class and record on chart paper.

Tell students that you have 3 pictures and each represents a habitat. Ask students what animals they think may live in those habitats shown on the pictures: ocean? Forrest? Pond?

Place 3 habitats around the room. Tape each of the habitat names in a visible area. On each card write the following names of animals that live in that habitat and have a picture. I.e. Ocean – lobster, whale, seal, shark.

Put the cards in a stack and have each player draw one of the cards. One at a time each player pretends to be the animal on the card while walking to the sign for the animal’s habitat. When all of the animals are in their correct habitat, have everyone come back to the middle and draw another card. Keep playing until all of the cards have been used.

Now that students have a better understanding of habitats, ask them if they know where insects may live. Brainstorm their responses on chart paper.

Explain to students that insects live everywhere except for in the ocean. Ask students which animals they think may live in the following places:

* **Under boards and rocks** –ants, crickets, beetles, termites.
* **In or around streams, ponds, lakes** –dragonflies damselflies, stoneflies, caddis flies, aquatic beetles, true bugs, flies.
* **Under loose bark, in logs and stumps** – Look for termites, ants and beetles
* **On crops** –grasshoppers, beetles, flies
* **In the air** –butterflies, moths, flies, bees, wasps, beetles, leafhoppers, grasshoppers.
* Around **outdoor lights** at night –moths, beetles, true bugs,mosquitoes.
* In, around or on **flowers and ornamental plants** –beetles, bees, wasps, ants, walking
sticks, butterflies, moths.
* In **houses** – Look for crickets, cockroaches, beetles, ants, flies,
mosquitoes, moths, termites, silverfish.

Tell students that we have some very special friends joining our class today. Show students the mealworms. Ask students if they think a mealworm is an insect. Explain to students that the mealworm is not a typical worm. It is in fact an insect and it is magical. Ask students if they know why a mealworm may be magical? Tell them it goes through the same stages as a butterfly; however it will turn into a beetle when it is in its adult stage. Ask students if they know what stage the mealworm is currently in. Explain to students that the mealworms will be spending a lot of time in our classroom and go over the classroom rules for the mealworms. Tell students that the mealworms need a habitat just like we do and we will need to make them comfortable in our classroom.

**Assessment:**

Observe students participation in class discussion and habitat activity. Observe students observational and classification skills at center.

**Cricket Lifecycle**

**Teacher:** Christina Bower

**Grade Level: Young’s**

**Subject**: Science/ Language Arts/Health

**Objective: Students will be able to**

* **identify the stages in a cricket lifecycle (incomplete metamorphosis)**
* **create a model of an incomplete life cycle**
* **demonstrate the correct order of a cricket’s lifecycle**

**Materials:**

* **“Chirping Crickets” – Melvin Berger**
* **Lifecycle sequencing cards**
* **Pictures of newborn, child, adult**
* Scissors
* Cricket lifecycle 3 stages cutout
* Glue

**Introduction:**

Reactivate students prior knowledge. Discuss the lifecycle of a butterfly. Explain to students that today we will learn about the lifecycle of crickets. Tell students to pay attention to the book and see if they can find any connections between the cricket and the butterfly or beetle.

Procedure:

Take a book walk through “Chirping Crickets”. After book walk ask students if they can identify the different stages a cricket goes through in their life cycle. Read through “Chirping Crickets” and discuss throughout. After the read aloud, show students the cricket sequencing cards. Ask students if they can help put the cards in order to show the lifecycle of a cricket. Which stage is first? Second? Third? What do students notice? Is the lifecycle of a cricket the same as a butterfly?

While reviewing order of stages, remind students of terms:

***Egg – Nymph - Adult***

1. The adult cricket lays an egg.
2. The egg hatches. When the egg hatches the cricket (nymph) is about the same size of the egg
3. During the next few weeks the nymph cricket will molt as it grows. It takes about 8 to 12 weeks for the cricket to become an adult.

Ask students to look at the crickets we have in the classroom – what stage are they in?

Demonstrate today’s activity to students. Explain to students that they will be demonstrating the lifecycle by cutting out the 3 stages and putting them in order. Once they have cut out the 3 stages and put them in order they will label the stages and colour.

**Assessment:** Observe students lifecycle activity to determine understanding of life cycle stages.

**Now You See Me, Now You Don’t**

**Insect Camouflage**

**Teacher:** Christina Bower

**Grade Level: Young’s**

**Subject**: Art/Science/Math

**Objective:**

* **Students will learn scientific vocabulary about camouflage and will learn about how insects can camouflage themselves**
* **From this lesson, students will be able to draw their own conclusions about how camouflage works**

**Materials:**

* Cardstock
* Water colour paint
* 12 moth cutouts
* Masking tape
* Pictures of insects camouflaged

**Introduction:**

Start by asking students if they have ever played Hide-and-Seek and invite them to describe

how the game is played. Then invite students to play a simple game of Hide-and-Seek in the

classroom. After the game, have a conversation with them about hiding and seeking by asking

questions like “Where was the easiest place to find someone? Why do you think so?” and

“Where was the hardest place?”

Talk with children about their game of Hide-and-Seek and other times when they may have played hiding games. Ask “What makes a place a good spot to hide?” and “What are some things you did so that nobody could find you?” Suggest the idea of camouflage by asking “How might what you are wearing make a difference?” “What do you think makes it easy to find someone?”

Mention to students the idea that sometimes animals need to hide. Ask them why they think

that might be true. Ask students for any examples of animals that may hide behind things or

inside of things the way they did when they were playing Hide-and-Seek. If they need help, ask

questions like “How do you think a mouse might hide from a cat?” or “How might a rabbit hide

from an owl?”

Introduce camouflage by saying that some animals hide in a different way. Instead of going into

something or getting behind something, they hide using the colors of their bodies. Ask students

to describe their ideas about how animals may hide that way.

Show students some photographs of insects that are camouflaged. Point out the color of the insect and the background and ask “What do you think might make it hard to see this animal? Why do you think so?” Then show some photos of insects that have body parts with shapes like their surroundings, like a praying mantis or a walking stick. Ask “How do you think this animal hides? “What do you notice about the shapes of this insect’s body and legs?” and “How does it look like the things around it?”

Mention to students that today they are going to do an activity in which they will need to camouflage an insect. The insect we will be camouflaging is a moth.

Demonstrate activity for students.

Provide each student with a moth template to cut out and a piece of cardstock or blank paper. Have students decide where they want their moth to be on the paper. Tape the moth on the location of their choice using masking tape. Have students sponge paint their entire page in order to ensure there is no white left to see. Allow the paint time to dry. Once the page is entirely dry, remove the moth cutout. Use Velcro to keep the moth cutout in its location. Students can put it on and pull off of their paper to demonstrate camouflage. Discuss with each student why it is hard to see their moth when it is in its original location on the Velcro.

**Assessment:**

Observe students participation in class discussion. Assess students understanding of camouflage by having a brief discussion with each of them about their artwork and the difficulty of seeing the moth when it is in its correct location.

**Insect Mouthparts**

**Teacher:** Christina Bower

**Grade Level: Young’s**

**Subject**: Science/ Language Arts/Art/Health

**Objective: Students will be able to**

* **Identify the four different types of insect mouthparts**
* **Recognize what insects eat based on what type of mouthparts they have**

**Materials:**

* Skittles (chewing mouthpart)
* Sponge
* Sugar
* Party favors
* Juice boxes
* Turkey baster
* Food colouring
* Plastic takeout cup with lid or a cup covered with saran wrap
* Plastic insects
* Mask cutouts

**Introduction:**

Ask students questions about the human mouth. When we are thirsty how to we drink using our mouths? When we are hungry how do we eat? Do we bite? Chew? Ask students if they have teeth. What do they use their teeth for. Ask students if they all have tongues. What do they use their tongues for? Explain to students that we have the mouth that we do, along with our teeth and tongues because we need these things to eat our food properly. Tell students that insects have specialized mouthparts that help them eat their favorite foods.

Brainstorm foods insects eat as a class. Ask students if they think that insects all have the same mouthparts just like humans do. Tell students that insects do not all have the same mouthparts, and that if they did they would all have to eat the same things.

Explain to students that we will be learning about the different types of mouthparts insects have.

***Chewing***

Tell students that the most basic type of mouthpart an insect can have are called chewing mouthparts. Chewing mouthparts are found on insects that eat plants and sometimes other animals. Insects chew their food opposite of us. We chew up and down, and insects chew side to side! Cockroaches, grasshoppers, crickets, beetles, and caterpillars all have chewing mouthparts. You can tell if you have a chewing insect on your plants because you will have little holes eaten in the leaves!

Demonstrate how chewing insects use their mouths to eat.

Make both hands into a fist and place them on each side of the mouth with both index fingers straight out and bring the index fingers together as to imitate pliers. Pick up a skittle with index finger.

***Sponging***

Tell students that some insects have sponging mouthparts. Their mouthparts are adapted to sponge up food. Houseflies have sponging mouthparts. They have nothing to chew, so they have to spit up on their food to dissolve it before they can sponge it up. So when a fly lands on your sandwich, don’t eat that piece – it has fly throw up!

Demonstrate how sponging insects use their mouths to eat.

Sprinkle some sugar on a plate or table surface. Explain that this represents some food like sugar that a fly might want to eat. Use a dry sponge and dip it into the sugar (it won’t work). Ask students how the fly might make it work better. Usually someone gets the idea to wet it. Dip the sponge in water and explain that a fly actually ‘spits’ on its food to wet it. Now the sponge can suck up the food easily.

***Siphoning***

Ask students to name some insects that drink nectar. Tell students that insects that like to drink nectar from plants have siphoning mouthparts. These mouthparts help them drink the sweet nectar from flowers. Siphoning mouthparts have the same pieces that chewing mouthparts have, they are just put together differently. Siphoning mouthparts are long, like a flexible straw, and can be stuck deep into flowers. Butterflies have siphoning mouthparts. Butterfly mouthparts are so long that they keep them rolled up under their head until they are ready to eat.

Demonstrate how siphoning insects use their mouths to eat.

Use a party favor to show how these insects eat. Blow the party favor out while it’s out drink from a juice box. Roll the party favor back in when finished.

***Sucking***

Tell students that other insects have sucking mouthparts. Sucking mouthparts have the same parts as chewing mouthparts; they are just adapted for sucking the juices of plants or blood. Sucking mouthparts are made like a sword or straw. Insects stick their mouth into a plant and suck all the juices. Other insects stick their mouthparts into animals or other insects and suck blood. Mosquitoes have sucking mouthparts. Stink bugs also have sucking mouthparts. Mosquitoes suck blood, and stink bugs suck plant juice.

Demonstrate how sucking insects use their mouths to eat.

Use a clear plastic cup containing liquid red or green gelatin or water colored with red or green food coloring. Place clear plastic wrap tightly over the mouth of the cup. Then, with the tip of the turkey baster, pierce the plastic wrap surface and suck some of the liquid into the stem of the baster.

**Wrap up:**

Review with students the four different insect mouthparts just learned by using plastic insects to determine their understanding.

Ask students:

What are the different types of insect mouthparts? Chewing, sucking, siphoning, and sponging.

Name some insects with chewing mouthparts, siphoning, sponging and sucking.

Ask students what type of mouthpart they would like to have if they were an insect. Explain to students that today we will make our very own insect masks with a mouthpart of our choice. Demonstrate today’s activity to students.

**Assessment:**

**Observe students participation in class discussion and their ability to identify the insect mouthpart during the review with plastic insects. Once students have completed their mask, ask them to explain why they chose that mouthpart and how the mouthpart they chose is used for eating.**

**Pollination**

**Teacher:** Christina Bower

**Grade Level: Young’s**

**Subject**: Science/ Language Arts

**Objective: Students will learn basic information about insects and pollination**

**Materials:**

* “No Strawberry Jam” written by Christina Bower
* Large paper flower
* Glitter
* Flower templates
* Chalk
* Cotton balls

**Introduction:**

Read and discuss “No Strawberry Jam” and discuss with students. Demonstrate pollination for students using the large paper flower and glitter. Place glitter in the center of the flower. Explain to students that you are a bee and you just landed on the flower to get some nectar (using your hands as bee’s feet). Rub hands in glitter. Tell students to stand up because they are a flowering apple tree and their hands are apple blossoms. Explain to students that you are leaving the flower you are on because you see other attractive flowers in the distance. Touch some student’s hands but not all. Ask students to take a seat. Ask students to look at the hands. Do some students have glitter? Do some students not have glitter? Explain to students that if they have glitter in their hands they have been pollinated.

Demonstrate today’s activity to the students.

Explain to students that they will each have a flower. Tell students to colour the flower but not to colour the middle. Once they are done coloring they will colour the middle in with chalk. They will than take a cotton ball which will act as a bee’s leg. Students will than move from flower to flower at their table, picking up “nectar” from one flower and depositing it onto another. Have students look at their cotton ball once they have visited all of the flowers at their table. What do they notice?

**Assessment:**

Assess student’s participation during class discussion and their ability to act as a bee, pollinating all flowers at their center.

**Guest or Pest?**

**Teacher:** Christina Bower

**Grade Level: Young’s**

**Subject**: Science/ Language Arts

**Objective:**

* **Students will identify some of the important roles insects play on the Earth**
* **Students will identify insects that are harmful or helpful to the environment**

**Materials:**

* T-chart labeled harmful/helpful
* Markers
* Clue cards with pictures of insects
* Harmful or helpful worksheet

**Introduction:**

Have a discussion about insects with students. Which bugs do they like or dislike? Which bugs “bug” us and which bugs do we depend on? Why or why not? Encourage them to draw pictures or write stories of good and bad bugs that they are familiar with.

Tell students the world has more insects than all other living things combined. Illustrate this by having 9 people stand up and 3 remaining seated. Explain to students that the people standing represent the insects and the people sitting represent all of the other animals on earth.

Tell students that we need insects for the work they do. Ask students if they know any work some insects may do. Explain to students that they visit flowers and spread pollen so that plants can produce fruits and vegetables. Some insects eat other insects that damage plants. These insects are helpful in gardens and on farms.

Some insects however harm plants, animals, and people. Insects that hurt us, or bother us or our animals, are harmful insects.

**Procedure:**

Call the students attention to the harmful/helpful chart. Introduce pile of cards with insects on it. Explain to students that when it is their turn, they will be given a clue and will need to decide which side of the chart the insect will belong in. Will it be helpful or harmful? Students may ask their classmates for help if they are unsure.

**Harmful or Helpful:**

**Bees** – they may sting, but they also make food that humans eat

**Carpenter ants** – large black insects that nest in wood; capable of spreading

Infections

**Moths** – eat holes in wool and fur clothing; attracted to light

**Mosquitoes** – give itchy bites; spread disease

**Fruit flies** – tiny, flying insects that breed in fruits and vegetables

**Aphids** – they harm plants by sucking sap

**House flies** – spread germs with their feet

**Wasps** – they sting but also kill harmful insects

**Ladybug** – eat insects that are harmful to gardens. Helpful for growers of vegetables and grain crops

**Butterflies** – beautiful insects that drink nectar

**Grasshopper**- eat farmers crops

**Praying Mantis** – eats insects that may harm food crops or spread disease

Have students share personal experiences they have had with these helpful and harmful insects (Example: Has anyone ever found a leaf that had a large hole eaten in it?)

Remind the students:

a. There are many more beautiful and helpful insects than there are harmful ones.

b. Insects play a very important role in the food chain. Without them, many creatures would have no food.

c. Insects eat other insects that cause people, especially farmers, lots of problems.

Demonstrate today’s activity to the students. Students will be given a worksheet with helpful and harmful insects on it and will be asked to circle the helpful insect.

**Assessment:**

Assess student’s ability to organize the insects as harmful or helpful.

 **The Art of Flying**

**Teacher:** Christina Bower

**Grade Level: Young’s**

**Subject**: Science/ Language Arts

**Objective:**

* **Students will understand how insects wings operate**
* **Students will create a model stimulating how an insect moves its wings**

**Materials:**

* Pictures of various insects with different types of wings
* “I Can Fly” activity sheet for each student
* Toilet paper tubes
* Transparent tape

**Introduction:**

Show students a poster with pictures of various insects’ wings. Have students look carefully at the illustrations of insects. Challenge students to identify insects they are familiar with. Ask students if they know how insects move their wings. Write ideas on the whiteboard.

Have students find a muscle in their arm and flex it. Next, have them pretend their arms are wings. As they lift an arm out to the side, challenge students to find the muscles that flex to lift the arm. They will discover that their shoulder muscles are mainly responsible. Ask them if any other parts of their bodies change shape as they lift their arms.

Explain that insects don’t have muscles in their wings. Most insect’s wings are thinner than tissue paper. Because they contain no muscles, insect wings cannot move on their own. The thorax is where the muscles used to move the wings for flight are located. These muscles contract and relax causing the thorax to change shape as it produces each wing movement.

Show students contracting and relaxing using a toilet paper tube or a paper bag.

**Procedure:**

Explain that students will be using cardboard tubes and paper wings to stimulate how an insect flies. Demonstrate activity for students.

1. Draw 2 airplane propeller shapes
2. Cut out 2 airplane propeller shapes
3. Slide wings through slits in the tube
4. Put a piece of tape on each side of the tube near the slit to keep the wing from sliding
5. Squeeze tube gently to move the wings

When models are completed have students gently squeeze their tubes to make the wings move. Ask students which part of their model they think is like a thorax? (center).

**Assessment:**

Assess student’s participation in both the initial and concluding class discussion for active involvement and appropriate responses. Observe students demonstration of the models they made assessing their understanding of how to make the wings move.