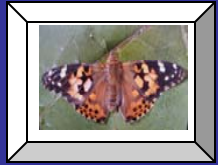


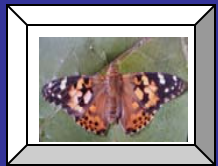
Butterflies



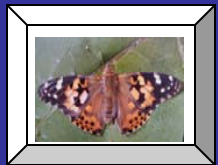
Butterfly Unit Table of Contents



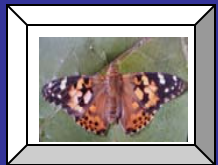
How do you raise a butterfly?



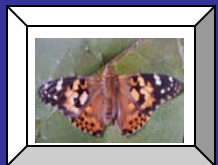
How do we treat butterflies humanely?



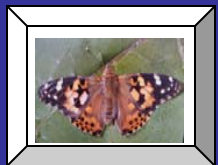
What do we do when the butterfly larvae arrive?



What can we find out about the larvae?

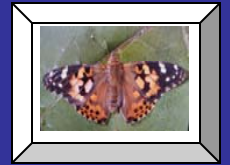


How can we tell how much the larvae have grown?



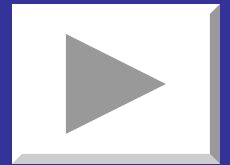
How can we build a butterfly cage?

Glossary



End

contents continued



Butterfly Unit Table of Contents



How could we design an experiment to find out what might be in the culture medium?



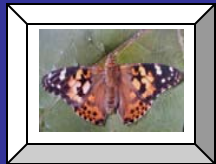
What happens when the larvae are fully grown?



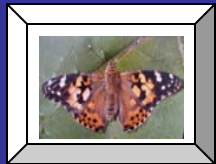
What does an adult butterfly look like?



How do adult butterflies feed?

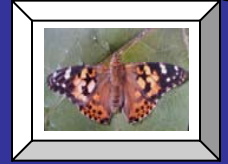


Where does the next generation of butterflies come from?



Why don't all butterflies survive?

Glossary



End

Previous



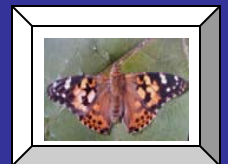
How do you raise a Butterfly

- What we will be doing:

Use some of the questions below to have a conversation with your peers about insects.

- Has anyone in class ever raised an insect?
- How long do insects live?
- What is the life cycle of an insect?
- Does a baby butterfly look like an adult butterfly?
- How do insects survive through the winter?
- Can we answer any of these questions by raising an insect?

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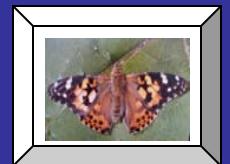


How do we treat the butterflies humanely?

- Humane Treatment of Butterflies
 - Handle all stages of the butterfly gently.
 - Handle the containers gently.
 - Make sure the larvae and adults have enough food and space and the right temperature.



Home



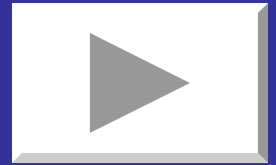
What do we do when the butterfly larvae arrive?

Key Questions:

- Why are there holes in the lid?
- Why is there filter paper under the lid?
- Why do we put medium in the culture vessels?
- Why do we use the paintbrush to transfer the larvae?

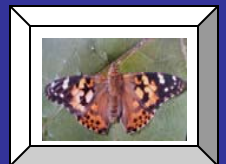


Students should realize that the culture vessels are designed to meet the larvae's need for oxygen, food, water, and space.



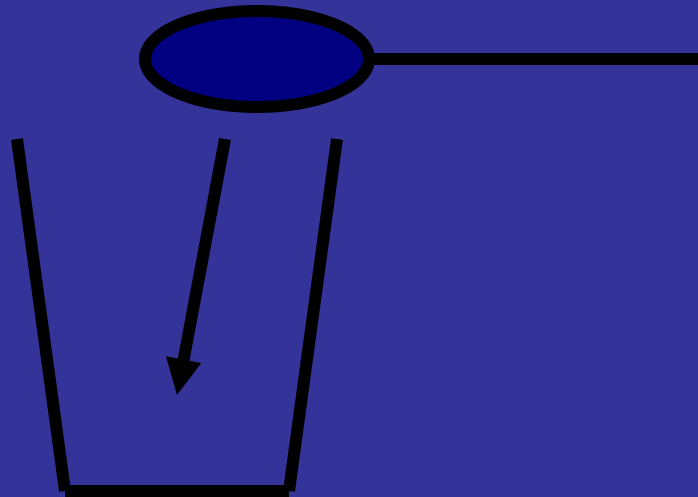
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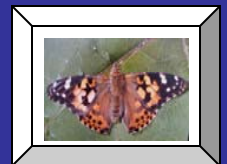
Step 1 : Arrival Day

- Place a little medium in your culture vessel.
- The medium gives the larva food and water.



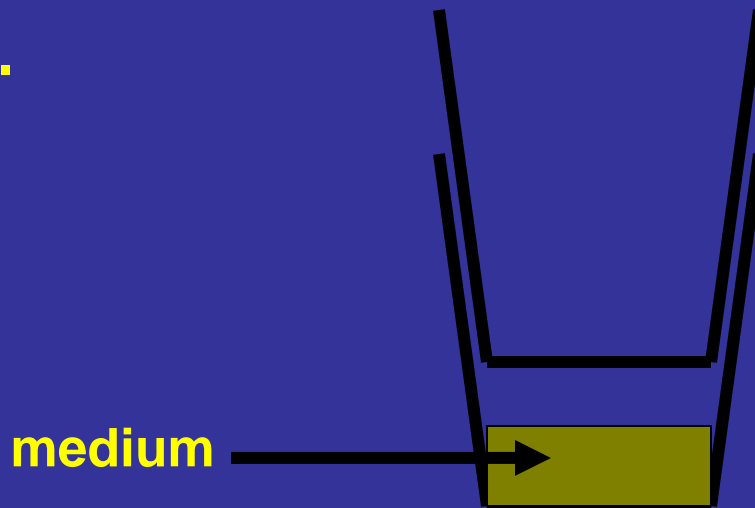
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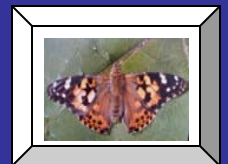
Step 2 : Arrival Day

- Use another culture vessel to pack the medium so that there are no air spaces.
- If air spaces are left, the larva can crawl into those spots and become stuck.



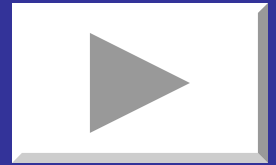
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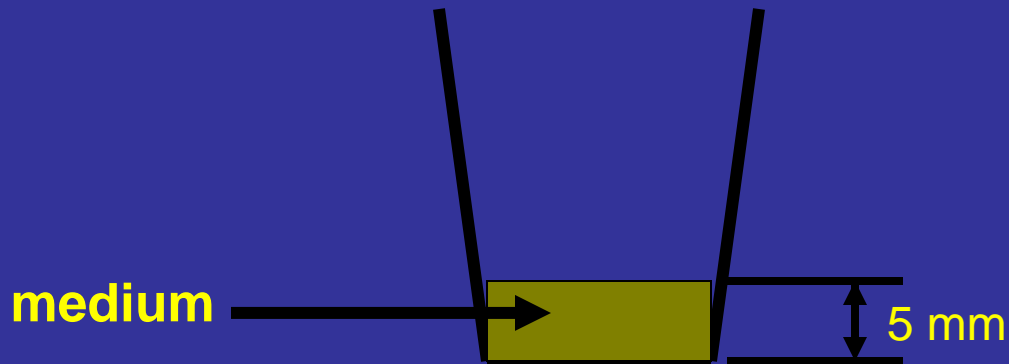


Step 3 : Arrival Day

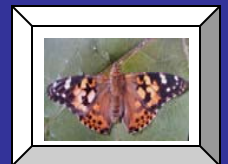
- Check the depth of the medium.
- It should be 5 mm deep



Next

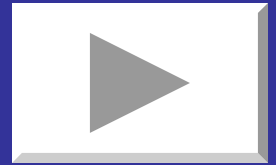


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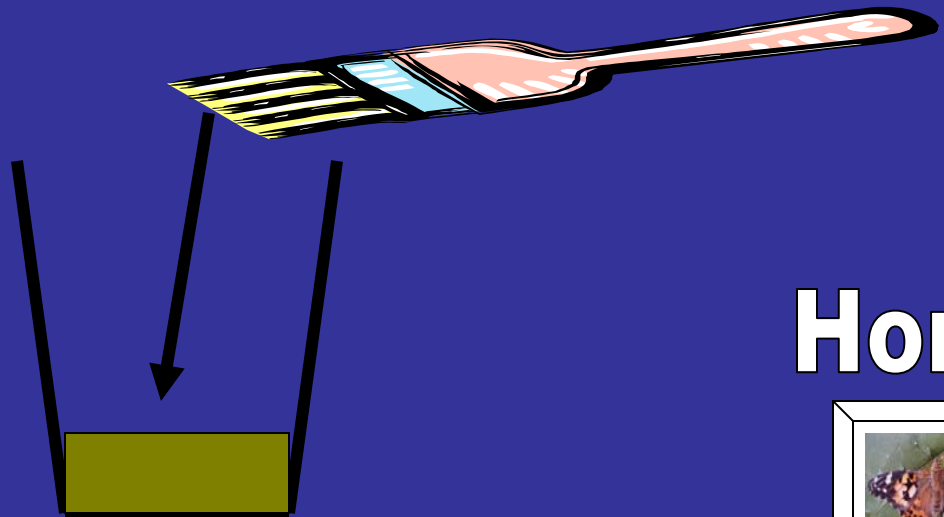


Step 4: Arrival Day

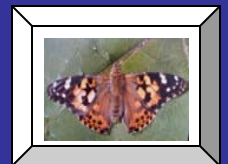
- Use a paintbrush to gently place one painted lady butterfly larva in your culture vessel.



Next

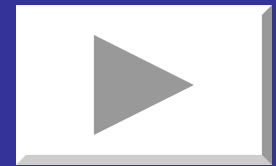
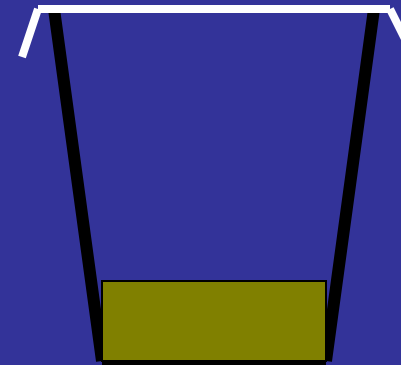
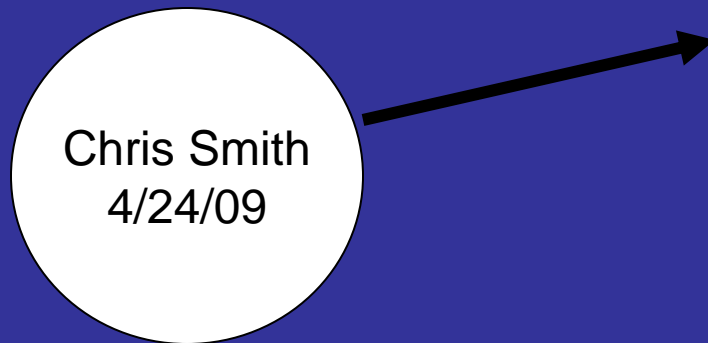


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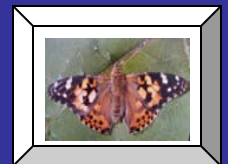
Step 5 : Arrival Day

- Write your name and date on both sides of the filter paper.
- Put the filter paper over top of the culture vessel and fold it over the edge of the vessel.



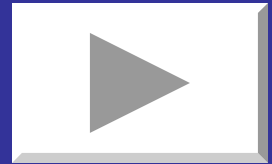
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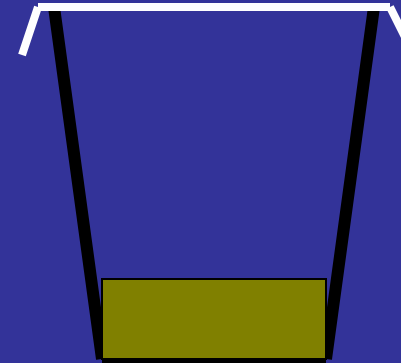
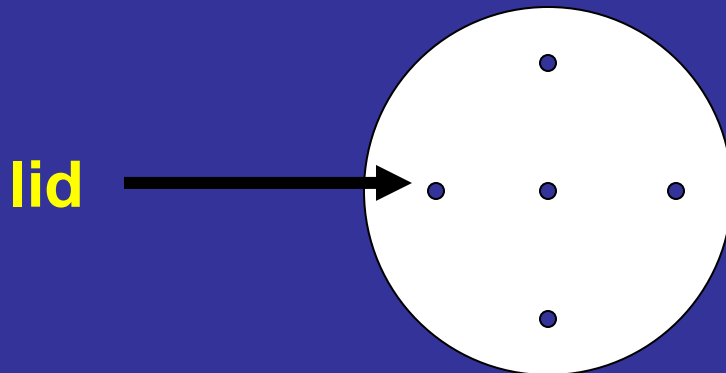


Step 6 : Arrival Day

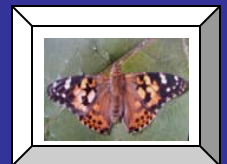
- Put the plastic lid on the culture vessel over the filter paper.
- Slowly work your way around the edge of the plastic lid until the lid snaps in place.
- The filter paper and holes in the plastic lid let air into the culture vessel.



Next



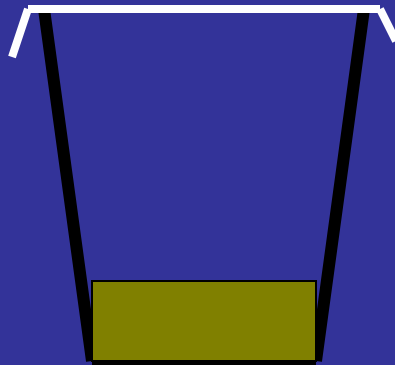
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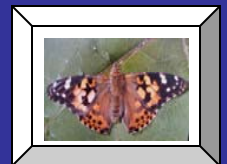
End

Step 7 : Arrival Day

- Place the culture vessel in a safe place.
- Be sure to avoid temperature extremes like window sills, radiators, and direct sunlight.



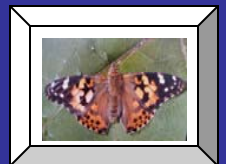
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What can we find out about the larvae?

- How many lenses are there?
- Which lens magnifies more?
- What might try to eat a larva?
- How does a larva protect itself?

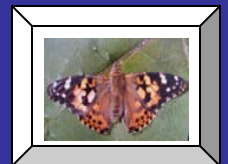
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How can we tell how much the larvae have grown?

- What did you observe?
- Have the larvae eaten any of the food?
- How can you tell?
- Why do animals eat?
- Have they made any waste products?
- How can you tell if a larva has grown?
- How did your predictions compare with your observations ?

Home



How can we build a butterfly cage?

[Click Here](#)

Group Cages Materials

- 2 paper fasteners
- Masking tape
- Nylon netting
- Ruler
- Twist tie
- 1 copy paper box
- scissors

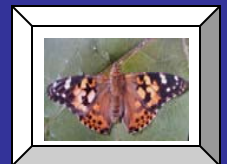
[Click Here](#)

Hanging Cage Materials

- 2 copy paper box lids
- 2 paper fasteners
- Cotton cord
- Nylon netting
- Stapler

Students turn to page 8 of the activity book

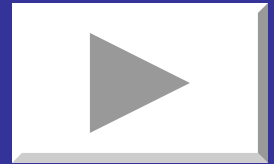
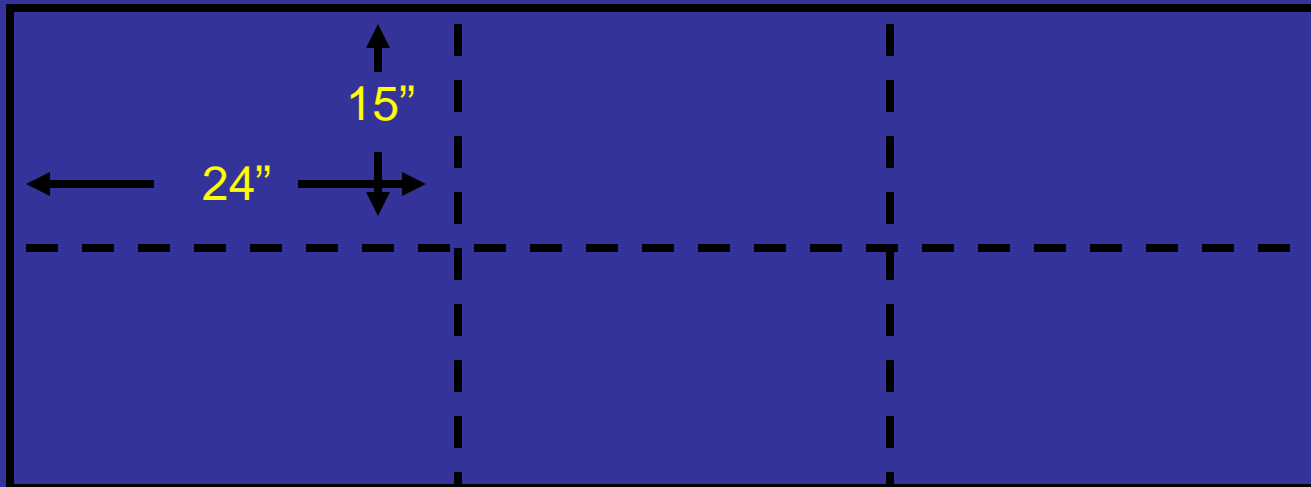
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Step 1: Group Cages

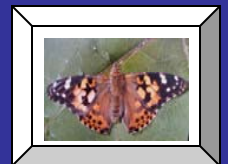
*Your cardboard box should be 12" by 9" by 18".

Cut the large piece of nylon netting into 6 pieces each measuring 15" by 24".



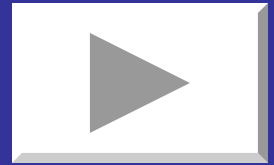
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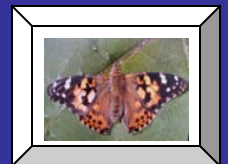
Step 2 : Group Cage

- If the box has flaps on the top where it was opened, cut them off.
- Cover any holes with tape, inside and out, so butterflies cannot escape.
- Make sure there are no sticky tape surfaces exposed inside the box.



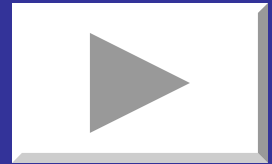
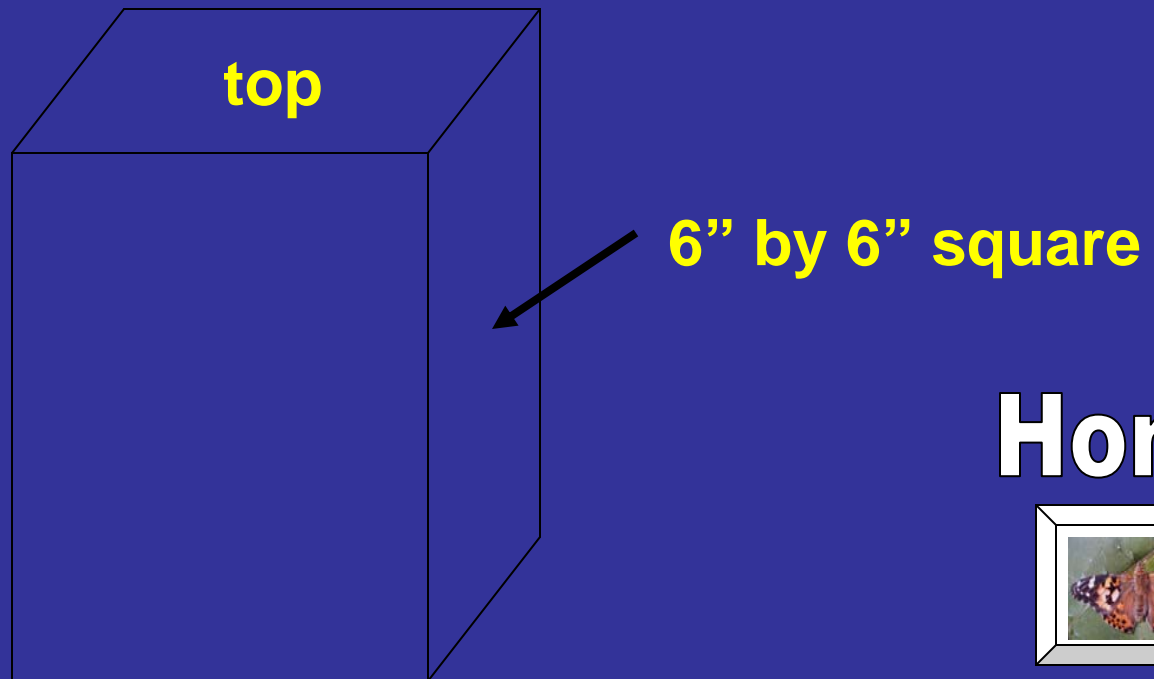
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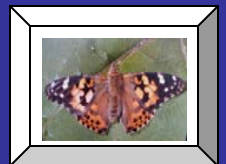
Step 3 : Group Cage

- Decide which side of the box will be the top of the cage and place box with cage top up.
- Choose one side of the cage for a door.
- Draw a 6" by 6" square on the center of that side of the box.



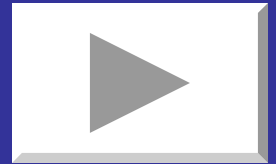
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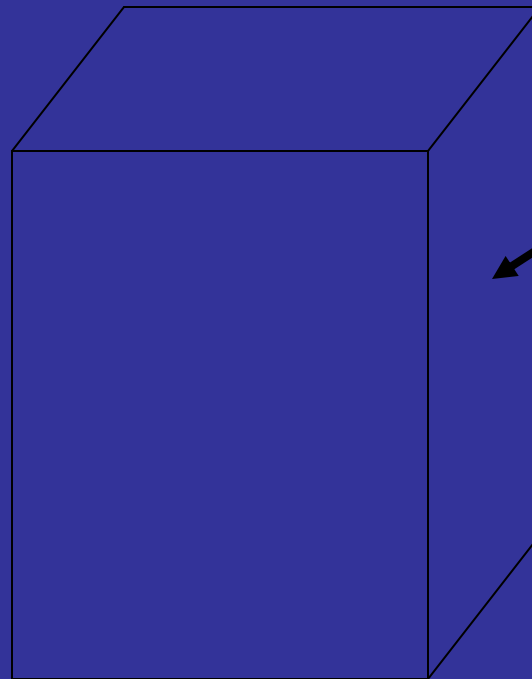


Step 4 : Group Cage

- Cut through 3 sides of the square. The fourth side will act as the hinge.



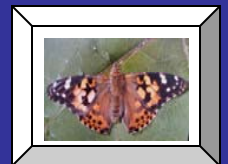
Next



6" by 6" square
Cut 3 sides.

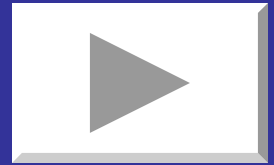


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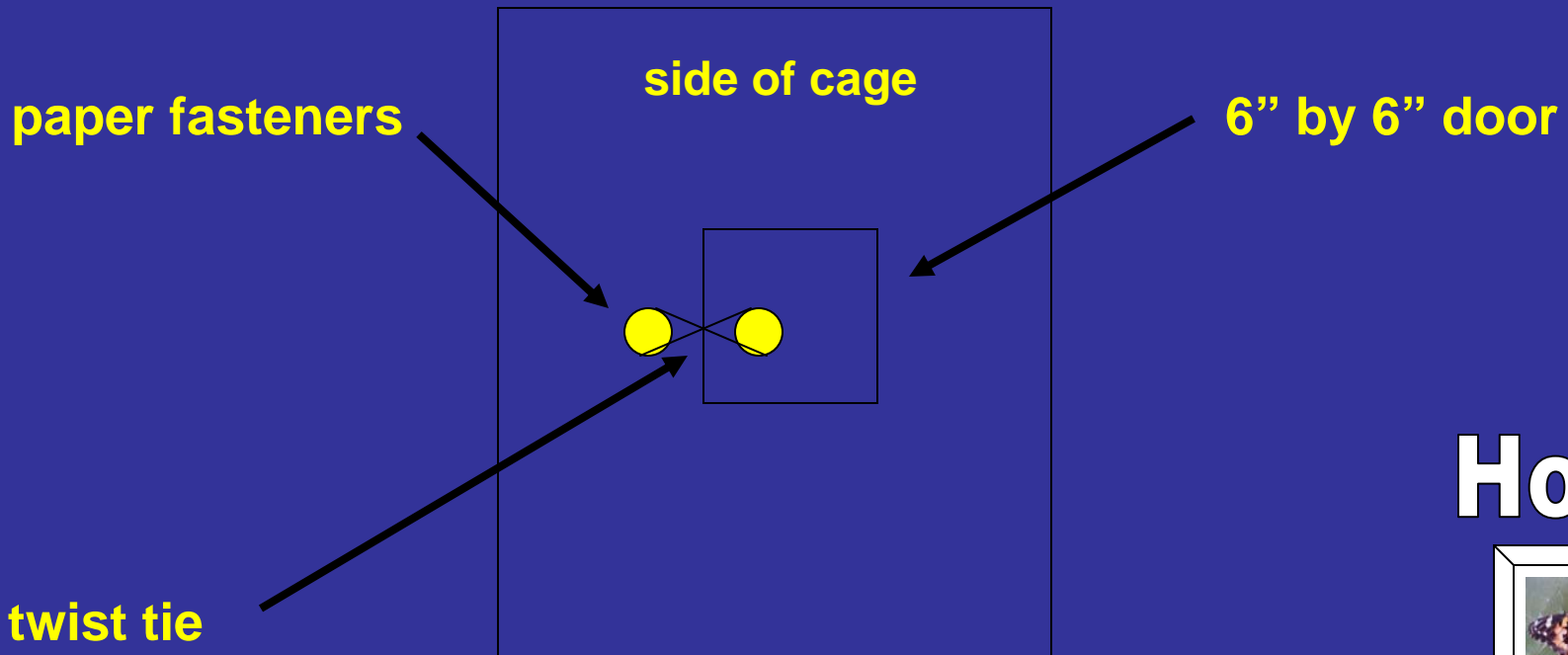


Step 5 : Group Cage

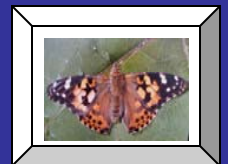
- Use two paper fasteners and a twist tie to make a door latch.



Next

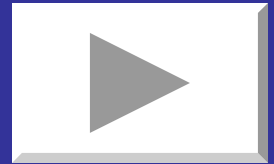


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Step 6 : Group Cage

- Place the box on a table with the opening up.
- Lay precut nylon netting over the opening.
- Use masking tape to secure one side of the netting to the box.
- Pull netting tight to other side of the box opening and secure with tape.
- Tape the two remaining edges of the netting to the box.

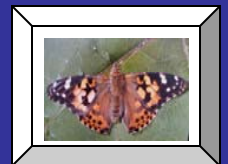


Next



opening of box

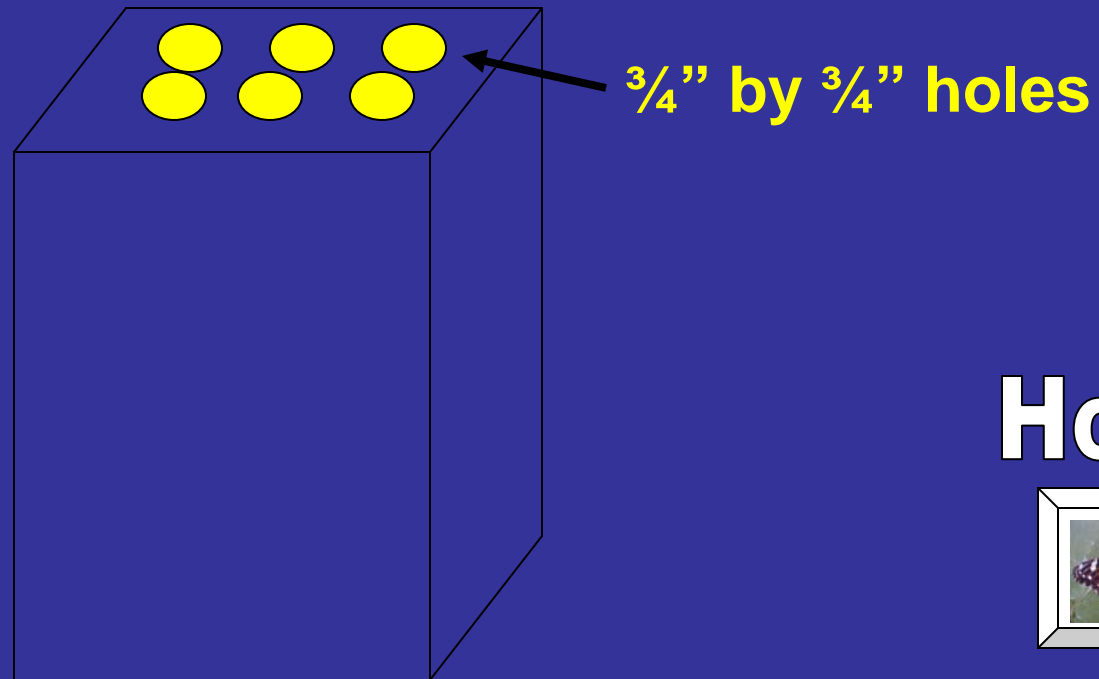
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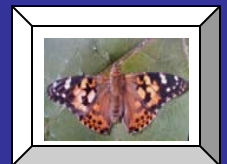
End

Step 7 : Group Cage

- Cut a hole $\frac{3}{4}$ " by $\frac{3}{4}$ " in the top of the cage for each pupa.
- This is where filter papers with hanging pupae will be attached.

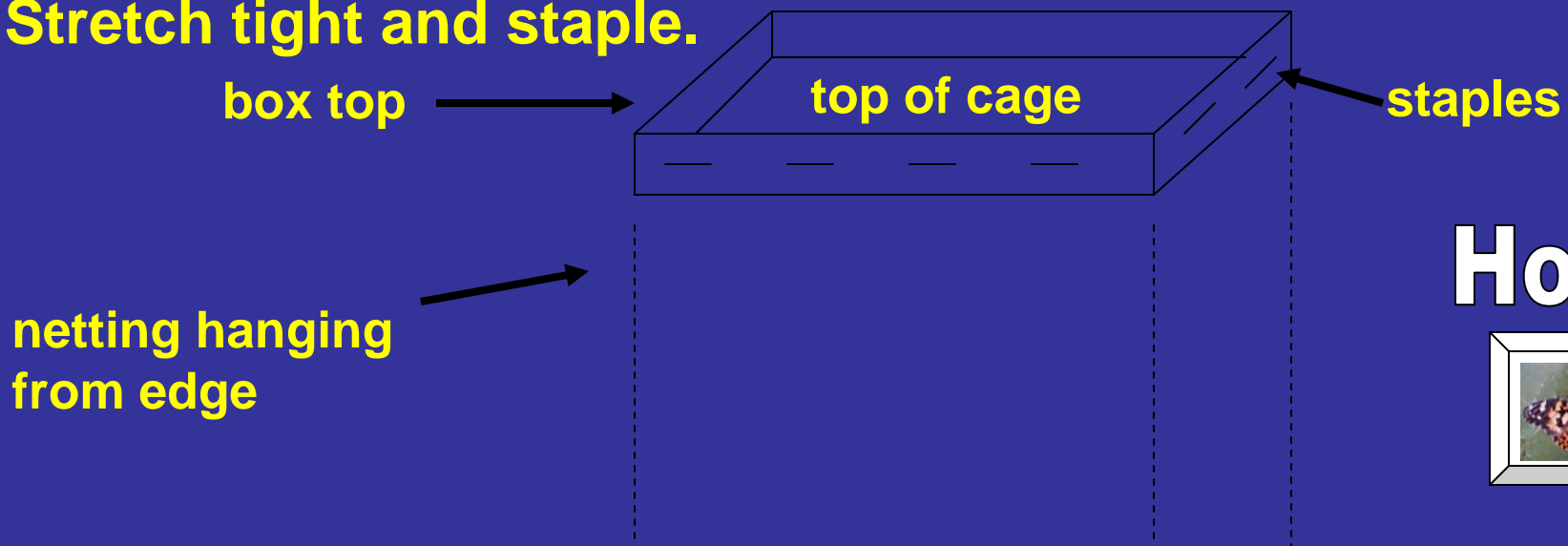


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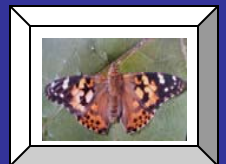
Step 1 : Hanging Cage

- Hold a box lid open side up for the top of the cage.
- Wrap the uncut piece of netting around the lid so the edge of the netting is even with the top edge of the box lid.
- Make sure the netting overlaps itself.
- Stretch tight and staple.



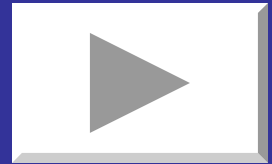
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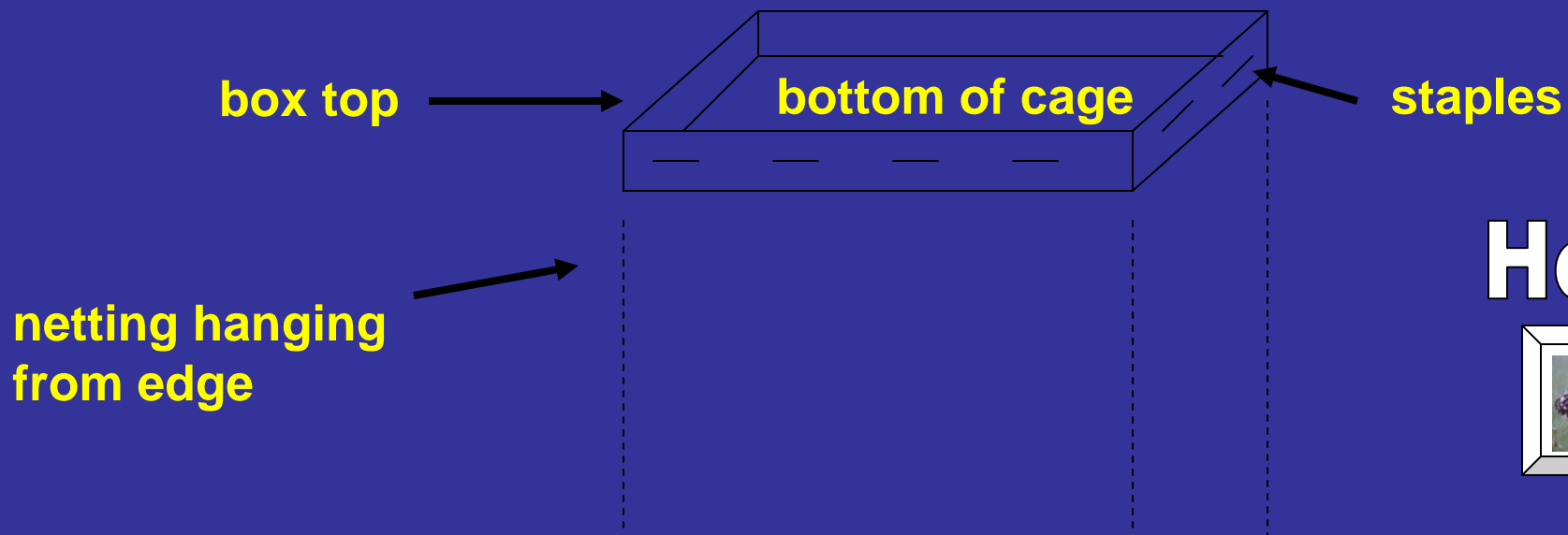


Step 2 : Hanging Cage

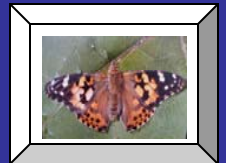
- Repeat step 1 to attach bottom of cage.
- Make sure inside of lid faces outside of cage, making stapling easier.



Next

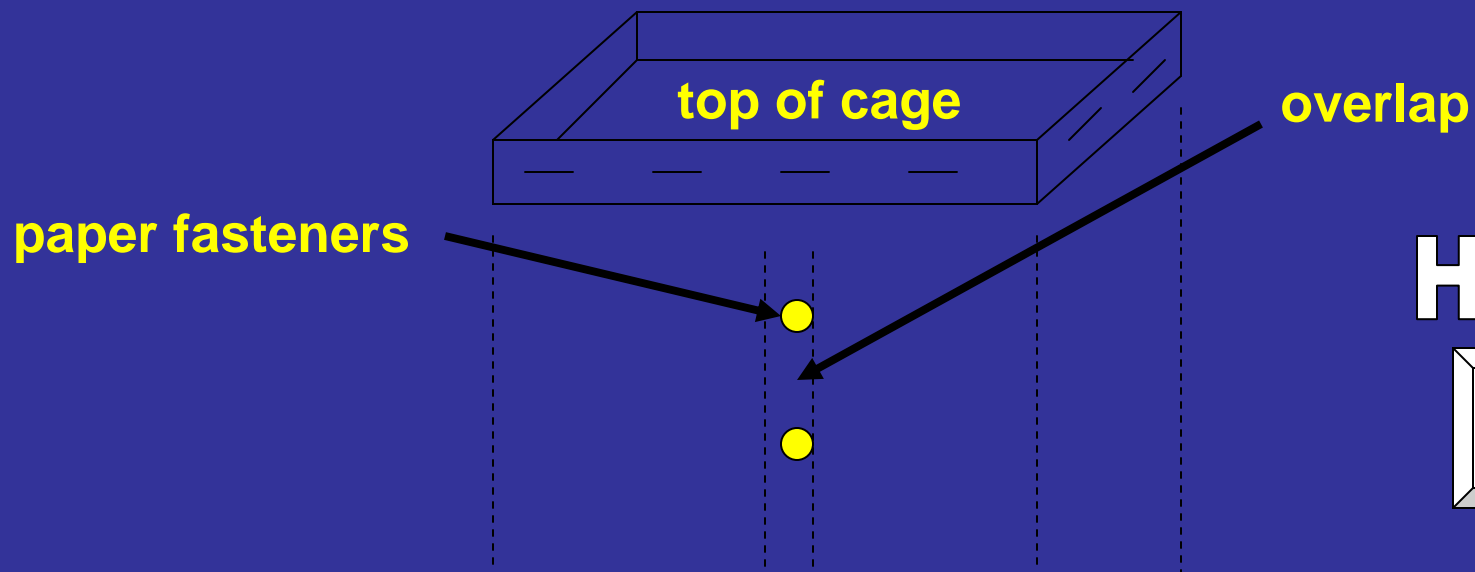


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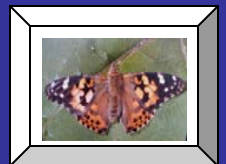
Step 3 : Hanging Cage

- Put 2 paper fasteners through the netting where it overlaps so that butterflies cannot escape and so students can reach inside when necessary.



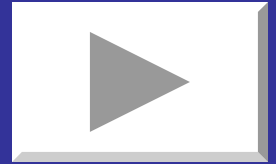
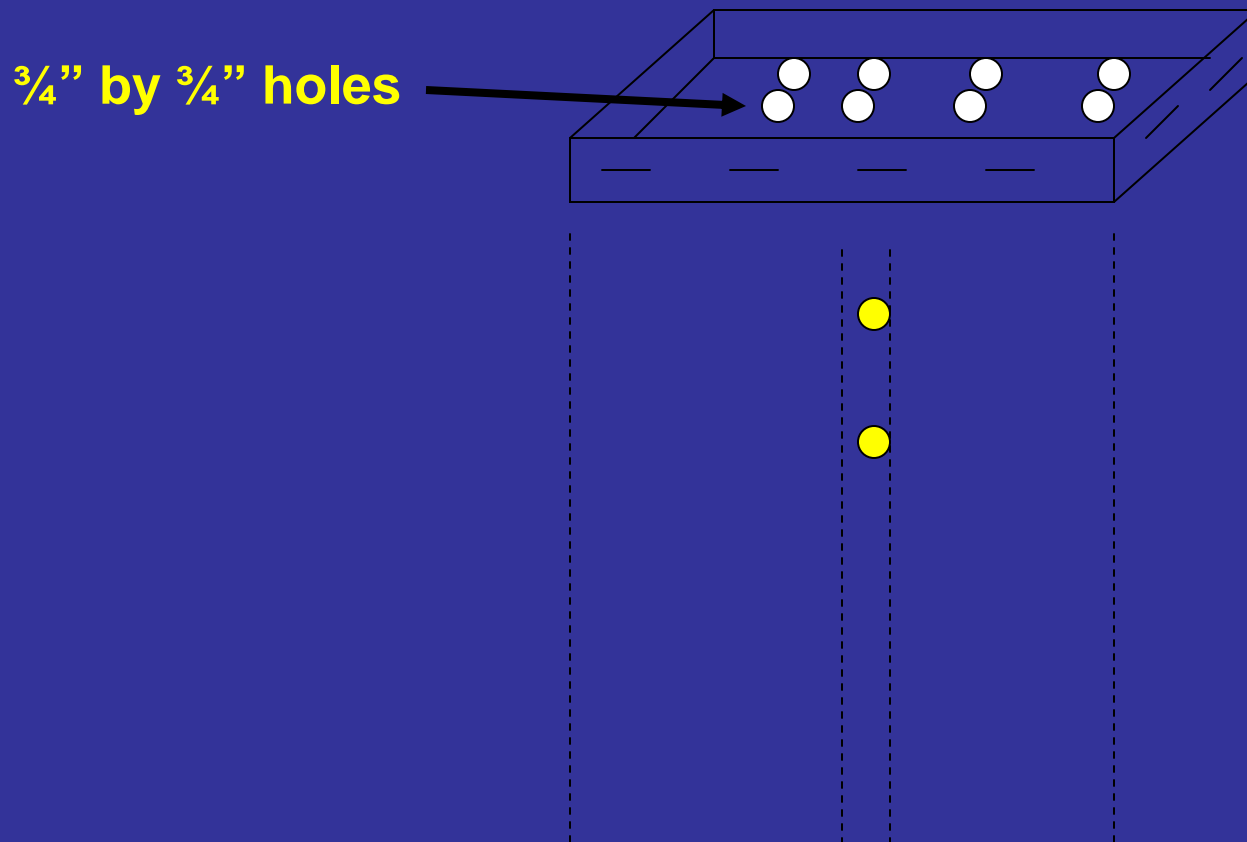
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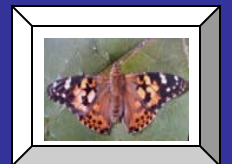
Step 4 : Hanging Cage

- Cut a $\frac{3}{4}$ " by $\frac{3}{4}$ " hole in the top for each pupa to be hung.



Next

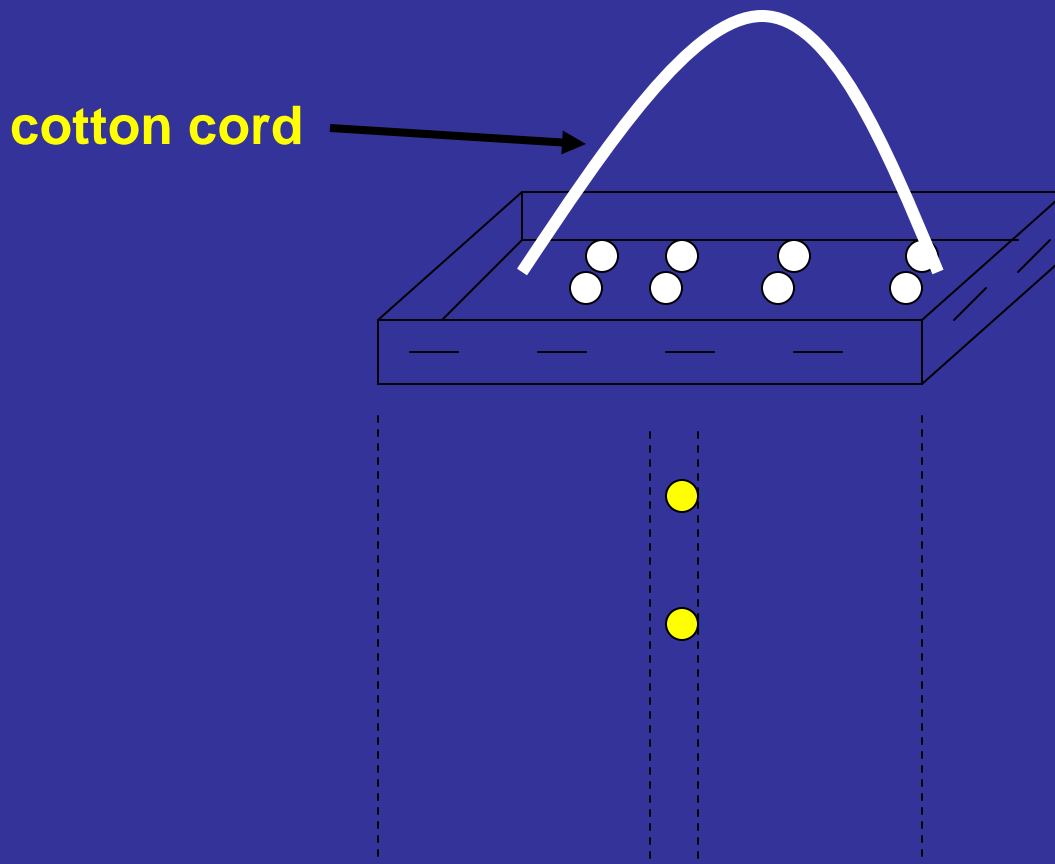
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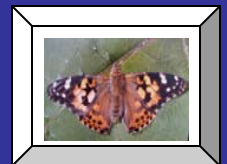
Step 5 : Hanging Cage

End

- Use cotton cord to hang the completed cage in the classroom.

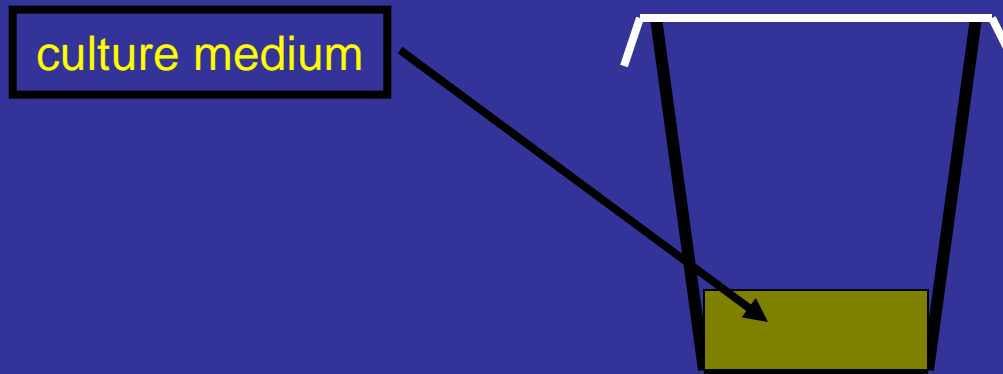


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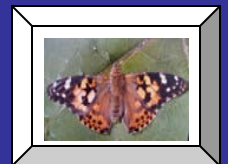


How can we design an experiment to find out what might be in the culture medium?

- How could we find out?
- What makes a good experiment?



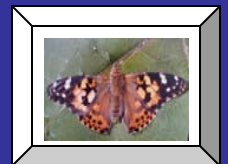
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What happens when the larvae are fully grown?

- Is this a chrysalis or cocoon?
- What do the pupae eat at this stage?
- What is the main function of the pupae?
- What is the main function of the larvae?
- What is the change from larva to pupa and pupa to adult called?
- Why are we transferring pupae to the cage?

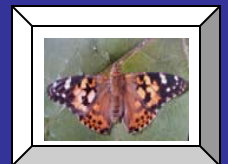
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What does an adult butterfly look like?

- How do the butterfly wings expand?
- Is the adult butterfly an insect?
- How can you tell?

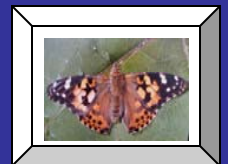
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How do adult butterflies feed?

- When do butterflies uncoil their proboscis?
- What do butterflies use their proboscis for?

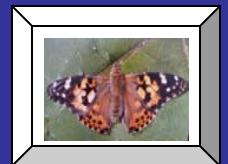
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Where does the next generation of butterflies come from?

- What would happen to painted lady butterflies if they no longer laid eggs?
- Why is the picture of the life stages called a life cycle?
- What happens to an individual butterfly after it mates?

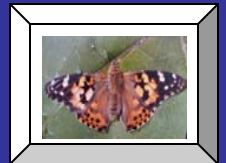
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Why don't all butterflies survive?

- Why don't all eggs in nature develop into adults?
- Would it be good or bad if all eggs matured?

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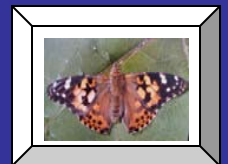
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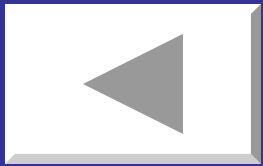


Next

- **Abdomen** - the rear part of the body of an insect which has organs for digesting food and for mating.
- **Adaptation** - the way a plant or animal is made so it can meet its needs.
- **Adult** - the fully grown stage of an animal when it's able to mate.
- **Antenna** - a sense organ on the head of an insect.
- **Biotic potential** - how quickly a plant or animal population can grow if all its young survive.
- **Butterfly** - along with moths and skippers, the insects with scale covered wings. The easiest way to tell butterflies from their close relatives is by their club-shaped antennae.

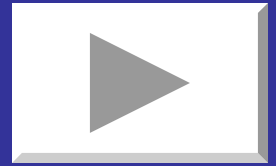
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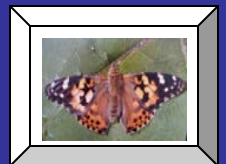
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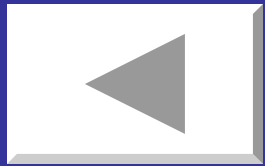


Next

- **Caterpillar** - the larva of a butterfly or a moth.
- **Chrysalis** - another name for the pupa of a butterfly. The outer covering is made from its own skin.
- **Cocoon** - a covering made of silk spun by a moth larva to protect it when it becomes a pupa.
- **Complete metamorphosis** - the way some insects grow up. It includes egg, larva, pupa, and adult stages.
- **Conclusion** - what was discovered from doing an experiment.
- **Control** - one part of an experiment that stays the same and can be used for comparison with the changed parts of the experiment.

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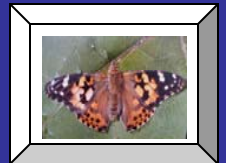
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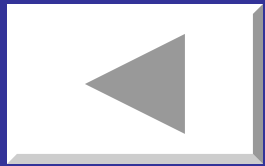


Next

- **Egg** - the beginning stage of an animal, made by a female animal.
- **Experiment** - to test an idea by making observations.
- **Growth** - the process in which a plant or animal increases in size.
- **Head** - the front part of an insect with organs for sensing and eating.
- **Humane treatment** - treating an animal in ways that meet its life needs and do not cause it to feel uncomfortable, feel pain, or die.
- **Insect** - an animal with six legs, a head, thorax, and abdomen, and a hard outer layer but no bones.

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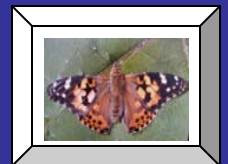
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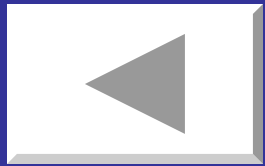


Next

- **Larva** - a wingless, often worm-like, feeding and growing stage of an insect such as a butterfly.
- **Legs** - The body parts used by an animal to move on the ground. Insect legs are found on the thorax and are jointed.
- **Life Cycle** - The changes in form plants and animals go through from young to adult.
- **Life Span** - The length of time a plant or animal lives.
- **Limiting Factor** - Any basic need of a plant or animal which is not being met very well and keeps that plant or animal from being more common.
- **Meconium** - Waste formed in the pupa which shows up just after an adult insect comes out of a pupa.

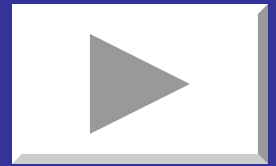
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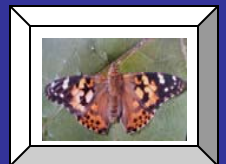
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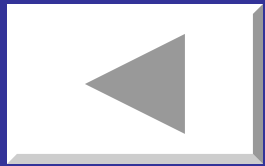


Next

- **Molt - Shed.**
- **Nectar - A sweet liquid made by some plants and eaten by insects.**
- **Predator - An animal which catches and eats other animals.**
- **Proboscis - The long tube mouth of some kinds of insects such as butterflies.**
- **Pupa - A resting stage of some insects in which a larva changes into an adult.**

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Glossary Continued



- **Segment** - One of the sections of the body of some animals, insects and worms for example.
- **Setae** - Bristles or stiff hairs which stick up from the skin of a lava.
- **Thorax** - The middle part of an insect where wings and legs are found.
- **Variable** - Any part of an experiment which is changed to see how it changes the results of the experiment.
- **Waste** - Something made by a plant or animal as it grows or uses energy which is not needed and must be gotten rid of for the plant or animal to stay healthy.

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