

For Creative Minds

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Numbers and Patterns

What are some number combinations that add up to ten?



$$1 + ? = 10$$

$$2 + ? = 10$$

$$3 + ? = 10$$

$$4 + ? = 10$$

$$5 + ? = 10$$

$$6 + ? = 10$$

$$7 + ? = 10$$

$$8 + ? = 10$$

$$9 + ? = 10$$

Do you see a pattern in the number of butterflies that Ed and Rose caught and released each day?

| Day | Ed | Rose | Total |
|----------|----|----------------|-------|
| one | 10 | 0 | 10 |
| two | 9 | 1 | 10 |
| three | 8 | 2 | 10 |
| four | 7 | 3 | 10 |
| five | 6 | 4 | 10 |
| six | 5 | 5 | 10 |
| seven | 4 | 6 | 10 |
| eight | 3 | 7 | 10 |
| nine | 2 | 8 | 10 |
| ten | 1 | 9 | 10 |
| last day | 0 | 10 + hatchling | 11 |
| Total | 55 | 56 | 111 |

Use the repeating pattern of butterflies shown below to identify the missing butterfly in each of the following patterns.

1. Yellow, Orange, Red, Blue, Green, Black, Orange, Brown, Yellow, Orange, _____, Yellow, Orange

2. Yellow, Orange, Red, Blue, Green, Black, Orange, Brown, _____, Orange, Yellow, Orange

3. Yellow, Orange, Red, Blue, Green, Black, Orange, Brown, Orange, Brown, _____, Orange

4. Blue, Green, Black, Orange, Brown, Orange, Yellow, Orange, _____, Orange, Blue, Green

5. Red, Orange, Blue, Green, _____, Orange, Brown, Orange, Yellow, Orange, Red, Orange

Legend: 1. Blue, 2. Red, 3. Yellow, 4. Red, 5. Green

Butterfly Body Parts

Butterflies are insects. They do not have a backbone as we do. They have a hard, outer covering called an exoskeleton.

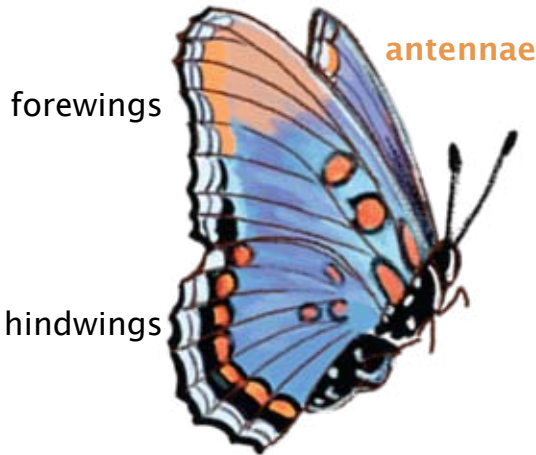
All adult insects have three main body parts: head, thorax, and abdomen.

The eyes, antennae, and mouthparts are on the head.

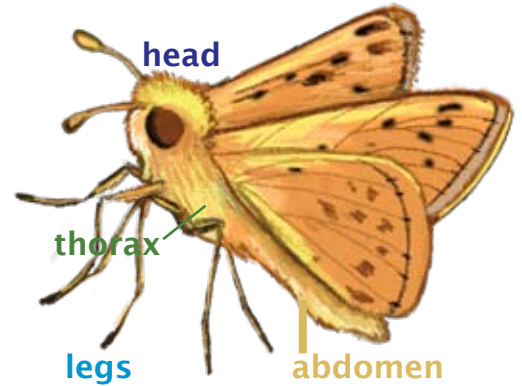
Wings and legs attach to the thorax.

The heart and body organs are in the abdomen.

Butterflies use their two antennae to “smell.”



Their “mouths” (proboscis) are like curled-up straws that uncurl when they drink.



All butterflies have four wings: forewings in front and hindwings in back.

They have six legs and feet. Not all are easily seen. They “taste” with their feet.

Butterfly Life Cycle Sequencing Activity

Butterflies undergo a complete metamorphosis: a series of changes in the body form during their life cycle. Can you put the butterfly life cycle in order? Answers are upside down below.

Adult butterflies emerge from the pupa. They fly as soon as their wings unfold and dry.



When fully grown, caterpillars turn into a pupa. A butterfly’s pupa is called a chrysalis; a moth’s pupa is called a cocoon.



Adult females lay eggs on host plants.



Caterpillars (larvae) hatch from eggs. As caterpillars grow, they shed (molt) their hard outer layer and have a new, bigger one underneath. Most caterpillars molt at least four times.

Answer: May start with either eggs or adults. General order is egg, larva (caterpillar for butterflies or moths), pupa, and adult.

Butterfly Compare and Contrast

How are the butterflies alike and how are they different? To compare the butterflies at different stages of their life cycles, by size, etc. see the free online activities.



Giant Swallowtail



Monarch



Red-spotted Purple



Common Buckeye



Question Mark



Clouded Sulphur



Fiery Skipper



Gulf Fritillary



Western Tiger Swallowtail



Painted Lady