activity one: lesson plan

# Incredible Invertebrates

Invertebrates are, by far, the most successful creatures in animal kingdom. You can find them on land, in the air, and in the water, dominating nearly every ecosystem on earth. This research and imagination project will help students get to know an invertebrate species better, learn about adaptations and ecosystems, then put their knowledge to use by inventing a new creature.

## what you need:

- 1 copy per student of the **Incredible Invertebrates** worksheets on pages 18-19
- 1 copy per student of the **Creature of the Future** worksheet on pages 20-21
- 1 copy of the **Invertebrate Research Topics** sheet on page 17
- research time for students to use the library and internet

## what you do:

**Getting Started:** **Cut out the Invertebrate Research Topics before the lesson. Each topic covers one genus or species of invertebrate with a fascinating history, adaptation, or connection to humans. After the research is finished, students will use the Creature of the Future worksheet to imagine and draw a new invertebrate and its adaptations.**

1. As a class, brainstorm the characteristics of invertebrates and as many species of invertebrates as you can think of. Don't forget land, air and water creatures!
2. Assign **Invertebrate Research Topics** to each student, or have them pick a topic at random by choosing out of a hat or a grab bag.
3. Hand out the **Incredible Invertebrates** worksheet and review the sheet as a class.
4. Give students research time and resources, such as library visits or Internet time, to complete the worksheets. This may take place over several days if necessary.
5. Once research projects are complete, hand out the **Creature of the Future** pages for students to work on at their desks. Use the list of adaptations on page 5 if it will help students brainstorm adaptations. Once these are done, have a Creatures of the Future parade and put them up on the art or science board!

### Key Discussion Points:

- Make a list of all the physical and behavioural adaptations students learned about while researching their incredible invertebrates. Add to the list using the examples of invertebrate adaptations on page 5. Which were the most interesting adaptations? Would any of these adaptations be useful for people to have?
- Which of the invertebrates researched were the most helpful to humans? Which were most harmful? What ways might they help us that we don't yet realize?
- What does it mean when we say invertebrates are successful animals? What makes them so successful? What do you think is in store for invertebrates in the future?

activity one: lesson plan

# Incredible Invertebrates continued

## Examples of Invertebrate Adaptations

| Adaptation | How Adaptation Helps Survival | Example Invertebrates |
|---|---|---|
| Flying | • can move quickly over land<br>• can see predators and food easily | • fly • mosquito • bee • wasp • ladybug • dragonfly • moth |
| Sting | • defense against danger<br>• helps to catch prey | • bee • wasp • earwig • hornet<br>• sea anemone • jellyfish |
| Jumping / Hopping | • helps move quickly<br>• easier to see surroundings when in long grass or hair<br>• protects against predators | • cricket<br>• grasshopper<br>• flea |
| Camouflage | • helps avoid predators | • moth • butterfly • spider |
| Mucus production | • helps make movement easier<br>• deters predators | • slug • snail • worm<br>• spittle bug |
| Lives in a colony | • relatives close by<br>• cooperation for food<br>• more protection against predators, danger | • ant<br>• wasp<br>• bee<br>• termite |
| Mimicry | • helps fool predators | •stick bug • leaf insect • some flies • butterflies • moths |
| Nocturnal | • helps avoid some predators<br>• less competition for food | • moth • spider • cricket |
| Swimming | • avoid land predators<br>• less competition for food<br>• move easily | • water boatmen • aquatic sowbug • dragonfly larva • mosquito larva |
| Skinny body shape | • move easily through small spaces<br>• lots of body surface area for respiration | • worm<br>• nematode<br>• caterpillars |

**Additional adaptations to consider:** burrowing • becoming a parasite • having many legs • making noise • lighting up • being poisonous • having part of the life cycle in the water.

# Invertebrate Research Topics

Below are a list of incredible invertebrates to jumpstart student research projects. Cut out the tags below, then assign topics or have students choose one out of a hat.

| | | | |
|---|---|---|---|
| giant squid | locust | sea urchin | man o'war |
| cockroach | earthworm | honeybee | giant octopus |
| zebra mussel | millipede | nudibranch (sea slug) | swallowtail butterfly |
| carpenter ant | pine beetle | oyster | sunflower star |
| silkworm | mosquito | decorator crab | ladybug |
| termite | sea sponge | copepod | banana slug |
| coral | praying mantis | tarantula | dragonfly |
| sea anemone | pine beetle | firefly | moon jelly |

# Incredible Invertebrates

Choose one incredible invertebrate to research, and get to know it better by filling in the questions on this incredible research worksheet.

**My Name:** _____ **Date:** _____

**My Incredible Invertebrate:** _____

**Sketch** & **label** your invertebrate and its body parts.

## Your Invertebrate's Ecosystem

Describe or draw the habitat your invertebrate lives in. Where does it fit in the food web?

# Incredible Invertebrates, continued

Name:

## Physical Adaptations

What special parts of your invertebrate's body help it to survive in its ecosystem?

## Behavioural Adaptations

What special ways does your invertebrate behave that helps it survive in its ecosystem?

What does your invertebrate eat?

How does it protect itself from predators?

How does your invertebrate move?

How does it find love?

How does your invertebrate affect people? Does it help, or harm, the way people live?

Why is your invertebrate important?

How is your invertebrate different than you?

What is the most amazing thing about your incredible invertebrate?

# Creature of the Future: The Invertebrate

**My Name:** _____ **Date:** _____

Have a seat. Are you comfortable? Good. Now, imagine the very spot where you're sitting on Earth - except one million years from now. Will your ecosystem look the same? Probably not! Will the invertebrates look the same? *Definitely* not! Use what you've learned about ecosystems and adaptations, and draw an amazing new invertebrate below who will be alive 1,000,000 years from now. (Don't forget to answer the questions on the next page.)

**The Amazing Invertebrate of the Future:**

_____

**Sketch** & **label** your invertebrate and its body parts.

# Creature of the Future, continued

Name:

## Your Invertebrate's Ecosystem

Describe or draw the habitat your invertebrate lives in. Where does it fit in the food web?

## Physical Adaptations

What special parts of your invertebrate's body help it to survive in its ecosystem?

## Behavioural Adaptations

What special ways does your invertebrate behave that helps it survive in its ecosystem?

What (and how) does your invertebrate eat?

How does it protect itself from predators?

How does your invertebrate move?

How does it find love?

What is the most amazing thing about your incredible invertebrate?