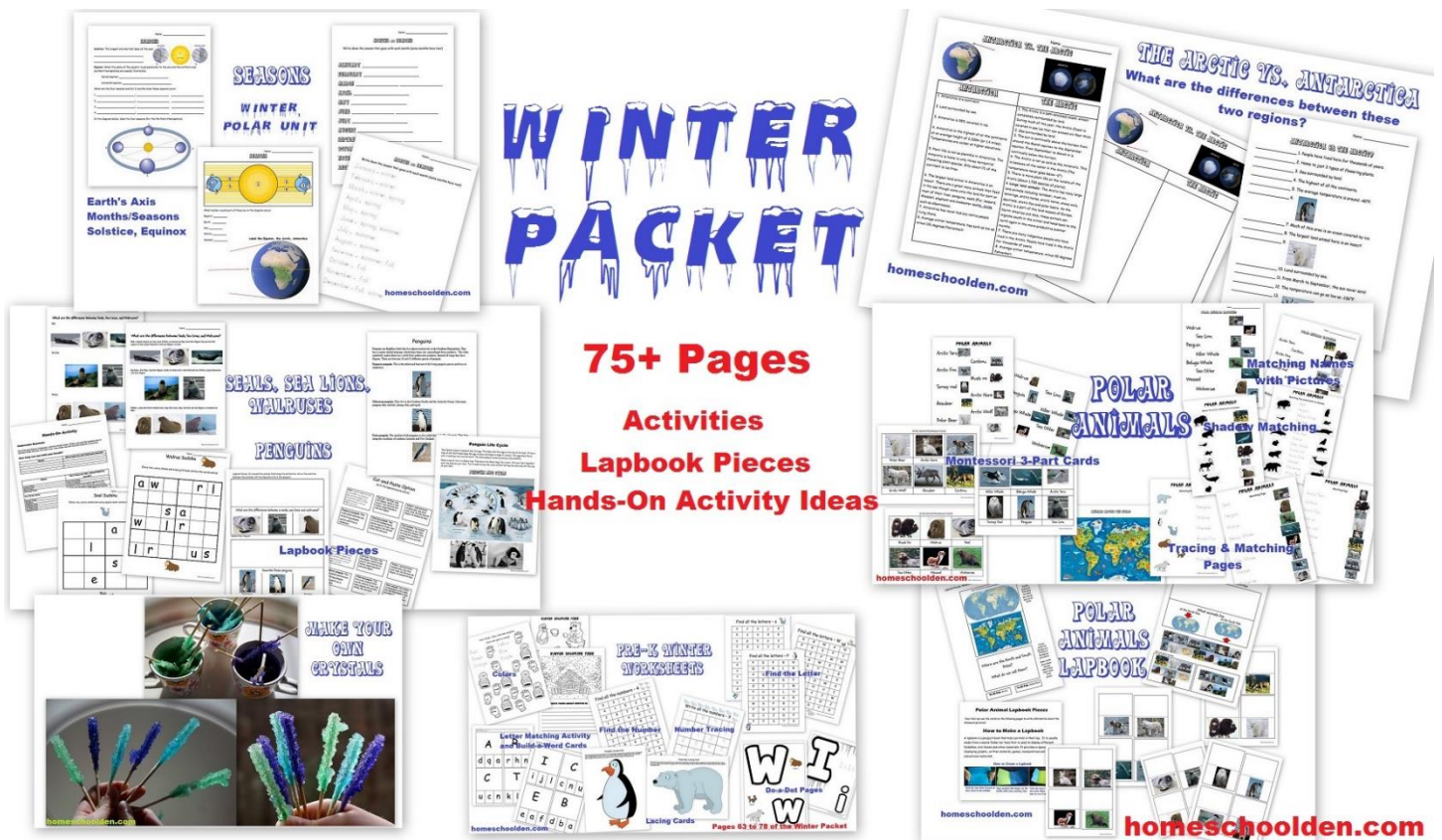


WINTER, POLAR UNIT



Made by Liesl at homeschoolden.com

Topics Include: Growing Crystals
Months/ Seasons
Earth's Axis and the Seasons
Arctic, Antarctica
Arctic Animals
Penguins
Whales

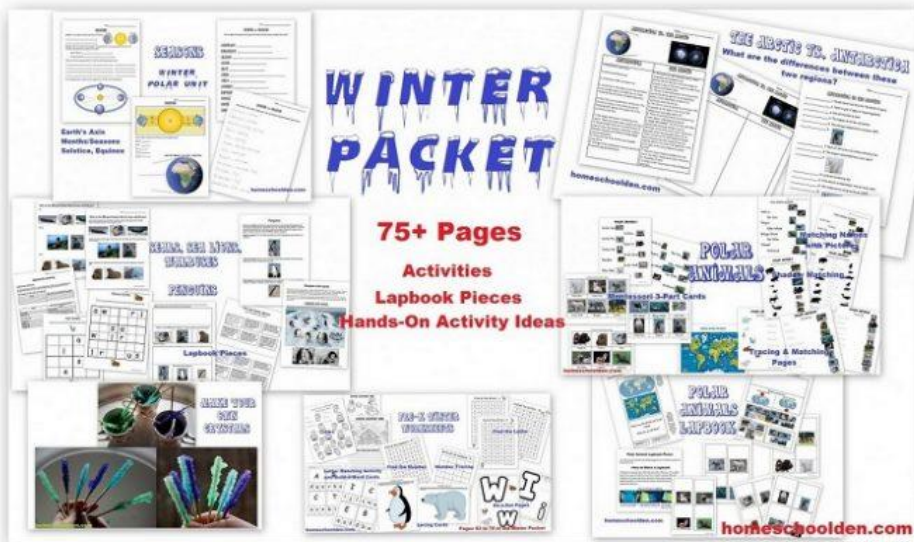
The Winter Packet now includes a 25+ page:

Hibernation Unit



The Hibernation Unit covers: why animals hibernate, terms such as torpor, brumation, estivation, diapause, endotherms vs. ectotherms. Plus, it covers where animals spend the winter and the dangers of hibernation.

It includes various activities such as notebook pages, interactive notebook/lapbook pieces, matching and tracing pages.



WINTER PACKET

75+ Pages

Activities
Lapbook Pieces
Hands-On Activity Ideas

What is included in the Winter Packet?

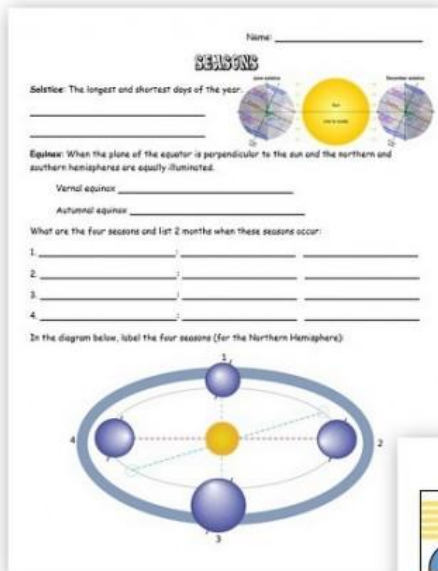
- * Earth's axis and how/why the tilt of the Earth creates the different seasons
- * major differences between the Arctic and Antarctica
- * Polar Animals
- * The differences between seals, sea lions, and walruses
- * Hands-on activity ideas about whales & Lapbook pieces
- * Hibernation Unit

Hibernation Topics Include: why animals hibernate, terms such as torpor, brumation, estivation, diapause, endotherms vs. ectotherms. Plus, it covers where animals spend the winter and the dangers of hibernation.



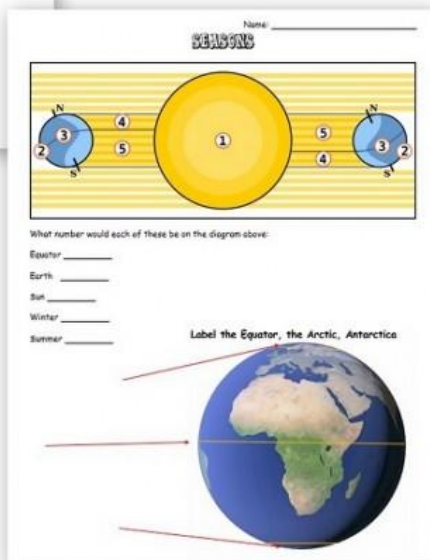
Hibernation Unit

25+ pages



SEASONS

WINTER, POLAR UNIT



Earth's Axis
Months/Seasons
Solstice, Equinox



THE ARCTIC VS. ANTARCTICA

What are the differences between these two regions?

NAME: _____

ANTARCTICA VS. THE ARCTIC




ANTARCTICA	THE ARCTIC
1. Antarctica is a continent.	1. The Arctic is a semi-enclosed ocean, almost completely surrounded by land.
2. Land surrounded by sea.	During much of the year, the Arctic Ocean is covered in sea ice that can exceed six feet thick.
3. Antarctica is 98% covered in ice.	2. Sea surrounded by land.
4. Antarctica is the highest of all the continents at an average height of 2,350m (or 14 miles). Temperatures are colder at higher elevations.	3. The sun is continually above the horizon from around the March equinox to the September equinox. From September to March it is continually below the horizon.
5. Plant life is not as plentiful in Antarctica. The Antarctic is home to only three terrestrial flowering plant species. Only about 1% of the continent is ice free.	4. The Arctic is not as cold as the Antarctic. This is because of the water in the Arctic (The temperature never goes below -2°)
6. The largest land animal in Antarctica is an insect! There are a great many animals that feed in the sea though come onto the land for part or most of their lives: penguins, seals (fur, leopard, Weddell, elephant and orcas), birds, such as albatrosses.	5. There is more plant life on the tundra of the Arctic (about 1,700 species of plants).
7. Antarctica has never had any native people living there.	6. Large land animals: The Arctic has many large land animals including reindeer, musk ox, lemmings, arctic hares, arctic foxes, snowy owls, squirrels, arctic fox and polar bears. As the Arctic is a part of the land masses of Europe, North America and Asia, these animals can migrate south in the winter and head back to the north again in the more productive summer months.
8. Average winter temperature: has sunk as low as minus 134 degrees Fahrenheit!	7. There are many indigenous people who have lived in the Arctic. People have lived in the Arctic for thousands of years.
	8. Average winter temperature: minus 40 degrees Fahrenheit.

NAME: _____

ANTARCTICA VS. THE ARCTIC







ANTARCTICA

THE ARCTIC

NAME: _____

ANTARCTICA OR THE ARCTIC?

- People have lived here for thousands of years.
- Home to just 3 types of flowering plants.
- Sea surrounded by land.
- The highest of all the continents.
- The average temperature is around -40°F.
- 
- Much of this area is an ocean covered by ice.
- The largest land animal here is an insect!
- 
- Land surrounded by sea.
- From March to September, the sun never sets!
- The temperature can go as low as -136°F.
- 

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POLAR ANIMALS

Montessori 3-Part Cards

POLAR ANIMALS

Arctic Tern 

Arctic Fox 

Snowy owl 

Reindeer 

Polar Bear 

POLAR ANIMALS

Caribou 

Musk ox 

Arctic Hare 

Arctic Wolf 

POLAR ANIMALS

Walrus 

Penguin 

Sea Lion 

Killer Whale 

Beluga Whale 

Sea Otter 

Wolverine 

Arctic Animal Montessori Cards

Polar Bear 

Arctic Hare 

Arctic Wolf 

Reindeer 

Caribou 

Arctic Animal Montessori Cards

Musk Ox 

Walrus 

Sea Otter 

Wolverine 

POLAR ANIMALS

Matching Names with Pictures

Shadow Matching

Tracing & Matching Pages

POLAR ANIMALS

Walrus 

Sea Lion 

Penguin 

Killer Whale 

Beluga Whale 

Sea Otter 

Weasel 

Wolverine 

POLAR ANIMALS

Arctic Tern 

Caribou 

Arctic Fox 

POLAR ANIMALS

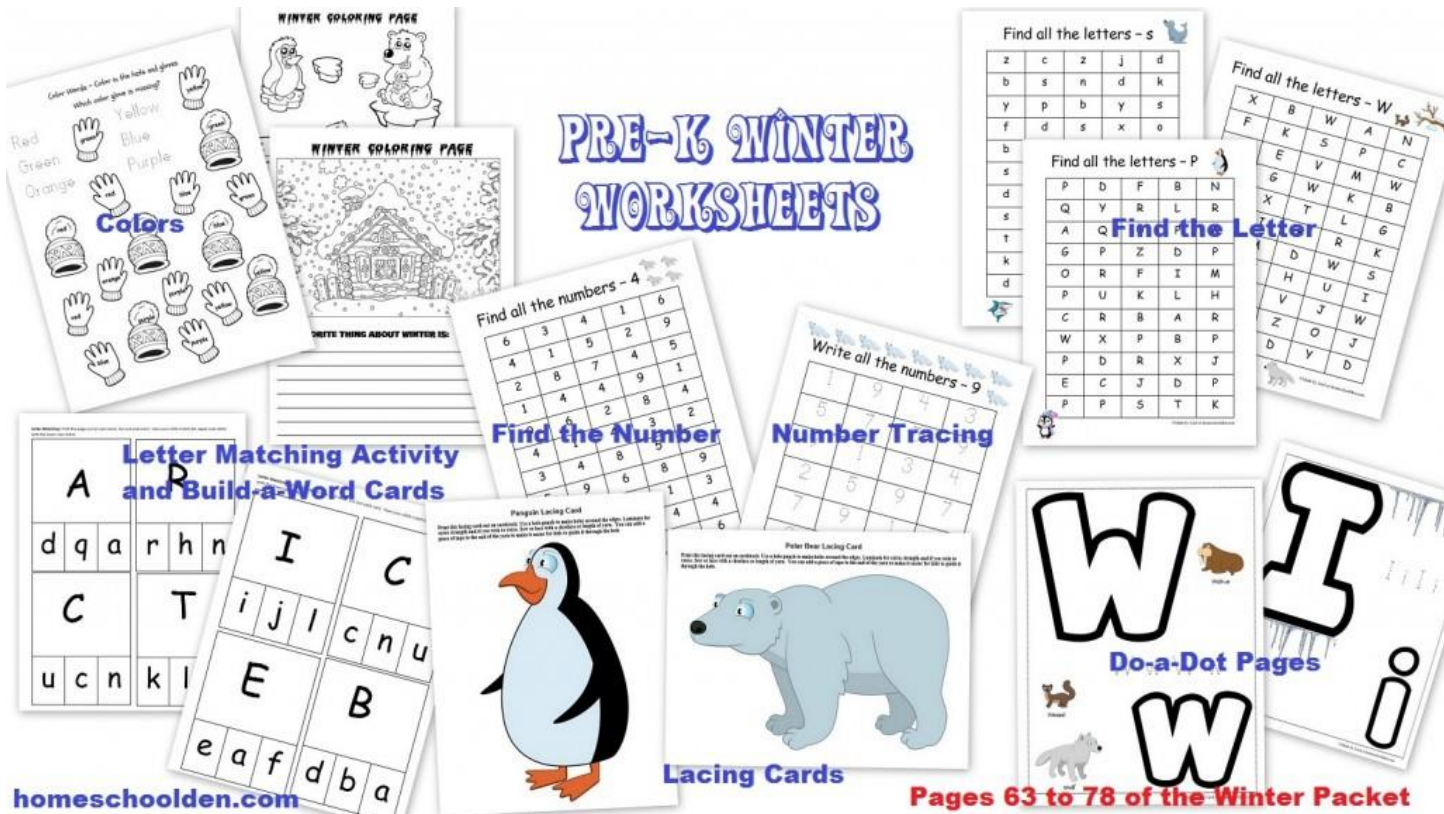
Arctic Tern 

Caribou 

Arctic Fox 

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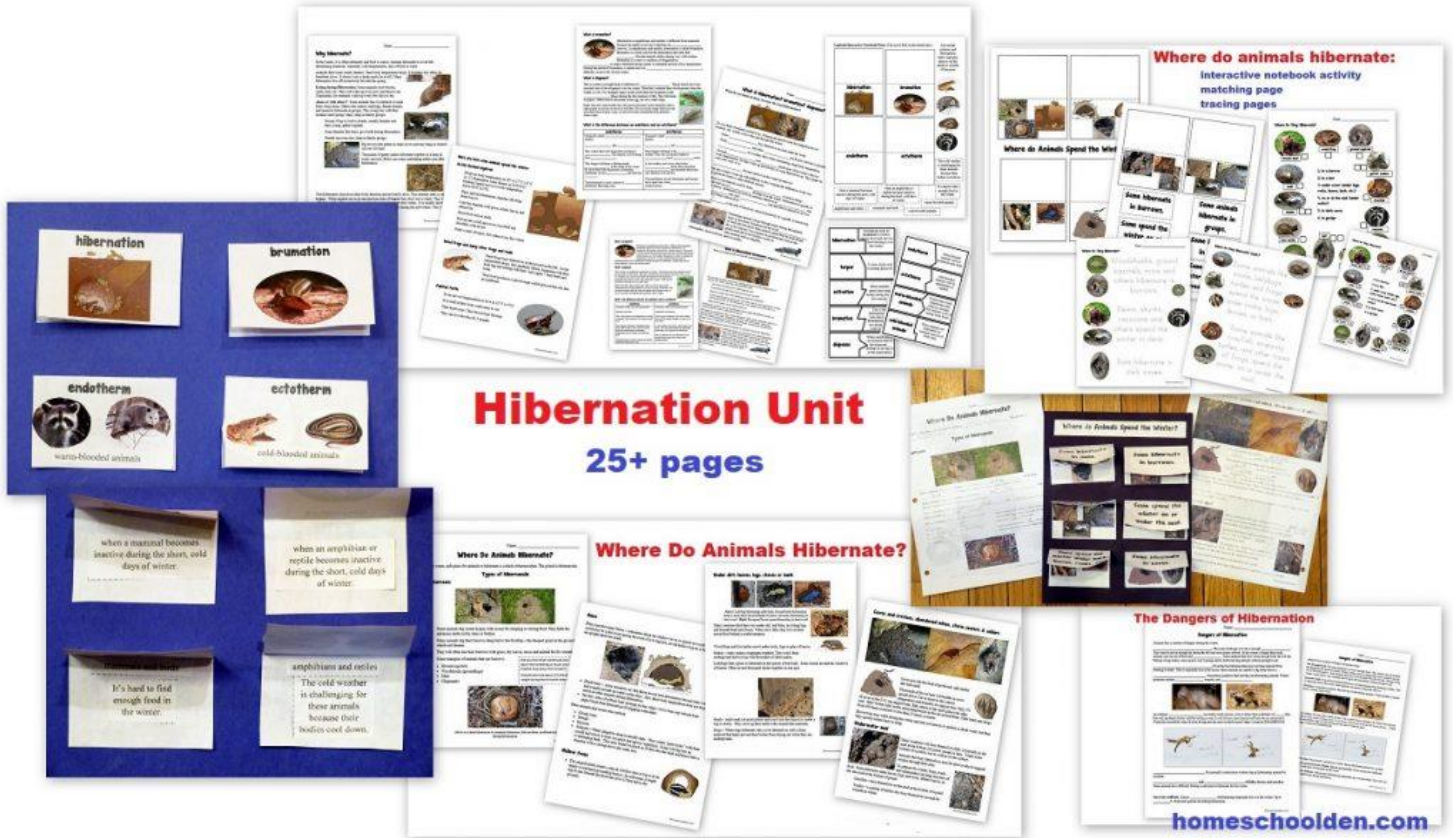
PRE-K WINTER WORKSHEETS



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Pages 63 to 78 of the Winter Packet

Hibernation Unit



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Hibernation Unit



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Hibernation Packet

Name: _____

What is hibernation? What is brumation?

Warm-blooded and cold-blooded animals must survive the cold winter months. Warm-blooded animals are known as **endotherms**. Endotherms like mammals and birds have the ability to generate their own body heat. Cold-blooded animals are known as **ectotherms**. Ectotherms don't possess the ability to generate sufficient heat to keep themselves warm, they depend on outside heat (like sunlight) to regulate their body heat. Endotherms and ectotherms face different challenges during the cold winter months.

Hibernation is when a mammal becomes inactive during the short, cold days of winter.

Hibernating and dormant mammals include bears, squirrels, woodchucks (also called groundhogs), raccoons, skunks, opossums, dormice, and bats. Can you identify the mammals below?



Brumation is a state or condition of sluggishness, inactivity, or torpor exhibited by reptiles and amphibians during winter or extended periods of low temperature.

© iStockphoto.com

Look! Interactive Notebook Pages (Cut out & fold on the dotted line.)

hibernation

brumation

endotherm

ectotherm

When a mammal becomes inactive during the short, cold days of winter.

When an amphibian or reptile becomes inactive during the short, cold days of winter.

Warm-blooded animals.

Cold-blooded animals.

When the cold weather is challenging for these animals because their bodies cool down.

It's hard to find enough food in the winter.

When the weather is challenging for these animals because their bodies cool down.

When the weather is challenging for these animals because their bodies cool down.

Name: _____

Animals Go Through Different Stages During the Year

Animals go through different stages during the year. The stages differ in biochemistry, physiology, appetite, and level of activity.

Some animals are true hibernators and they go into a prolonged period of deep sleep called torpor. Others wake periodically through the year, snack, defecate and even move around for short periods.

The annual cycle of black bear activity and hibernation has five stages:

1. normal activity – spring through midsummer or fall
2. hyperphagia – midsummer-fall
3. fall transition
4. hibernation – winter
5. waking hibernation – spring

Normal activity typically lasts from green-up in spring to the onset of hyperphagia in midsummer or fall, depending upon region. It's during this time that animals have the fuel they need for growth and enjoyment.

Hyperphagia – During the fall months, animals eat and drink nearly nonstop. They need to put on weight to prepare for winter and hibernation. This process is called hyperphagia.

Hibernation is a period of extreme energy and drinking to stores for hibernation. Animals, put on a thick layer of stored fat to help them survive the winter. During hibernation, fat is slowly absorbed by an animal's body. Most animals lose up to half of their body fat during hibernation. Fat also helps keep animals warm in the winter. Baby bears will double their size before digging in for the winter. A black bear will gain up to 35 pounds a week when they are preparing for the winter.



Grizzly bears will put on hundreds of pounds of fat before going into hibernation.

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Name: _____

Where Do Animals Hibernate?

A warm, safe place for animals to hibernate is called a hibernaculum. The plural is hibernacula.

Types of hibernacula

Barrows



Some animals dig winter homes with rooms for sleeping or storing food. They hide the entrances under rocks, trees or bushes.

Many animals dig their burrows deep below the frostline – the deepest point in the ground which will freeze.

They will often line their burrows with grass, dry leaves, moss and animal fur for warmth.

Some examples of animals that use burrows:

- Ground squirrels
- Woodchucks (groundhogs)
- Mice
- Chipmunks



Here is a black dormouse or common dormouse (Eptesicus europaeus) during hibernation.

Where Do Animals Hibernate?

Under dirt, leaves, logs, stones or bark



Many animals hibernate under logs, groundhogs hibernating under a tree. Blue Ground Squirrels (Citellus lateralis) hibernating in dead wood. White-footed Mice (Peromyscus leucopus) hibernating in dead wood.

Many creatures find their way under dirt, leaf litter, in rotting logs, and beneath bark and moss. When mice hibernate, they live in their secret food behind a sealed entrance.

Wood frogs and box turtles crawl under rocks, logs or piles of leaves. Snakes – many snakes congregate together. They crawl deep underground and curl up with thousands of other snakes.

Ladybugs find a place to hibernate in the spaces of tree bark. Some cluster around the windows of homes. Others several thousand cluster together in one spot.



Snails – snails seek out moist places and crawl into the rotting or under a log or stone. They close up their shells with cement-like materials.

Stags – When stags hibernate, they cover themselves with a slaty material that helps prevent their bodies from drying out while they are underground.



Dens

There are two main types of dens – shallow ones or spaces in a rock could also be a dirt room among the roots of a living tree, an old hollow log on a fire escape dead tree trunk.



Black bears – some scientists say that these are not true hibernators because they do not hibernate on warm winter days. Also, their body temperature does not drop as much as other animals during hibernation.

See this video of a black bear creating its den. <https://www.bear.org/hibernate-bear>

Other animals that create dens include:

- Groundhogs
- Skunks
- Chipmunks
- Squirrels
- Mice
- Chipmunks

Many chipmunks sleep in ready dens. They create "pore holes" with their mouth and claws to close out space and prevent vegetation. Some will dig into an abandoned hole with a ceiling above the water line.



Hollow trees

The striped skunk creates a den in a hollow tree or log or in an empty woodchuck groundhog home. It could even, a night groundhog.



Caves and crevices, abandoned mines, storm sewers & cellars



Caves provide the kind of protection, safe shelter that bears need.

Thousands of bears have built inside to caves inside caves. Caves must be the correct temperature and humidity to support hibernation.

Many bears hibernate in the same place year after year. Bears have been known to hibernate in the same place year after year.

Bears have been known to hibernate in the same place year after year.

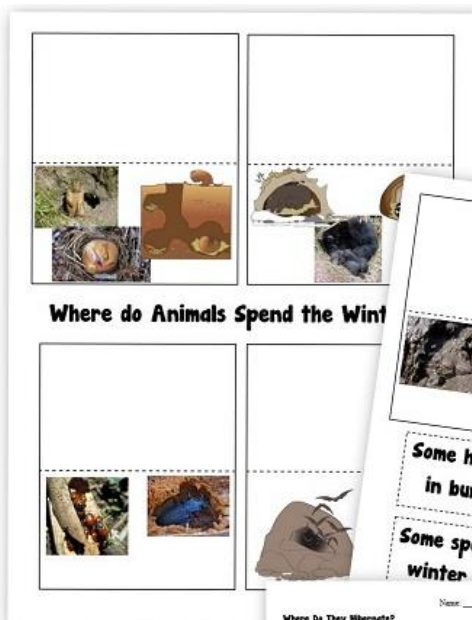
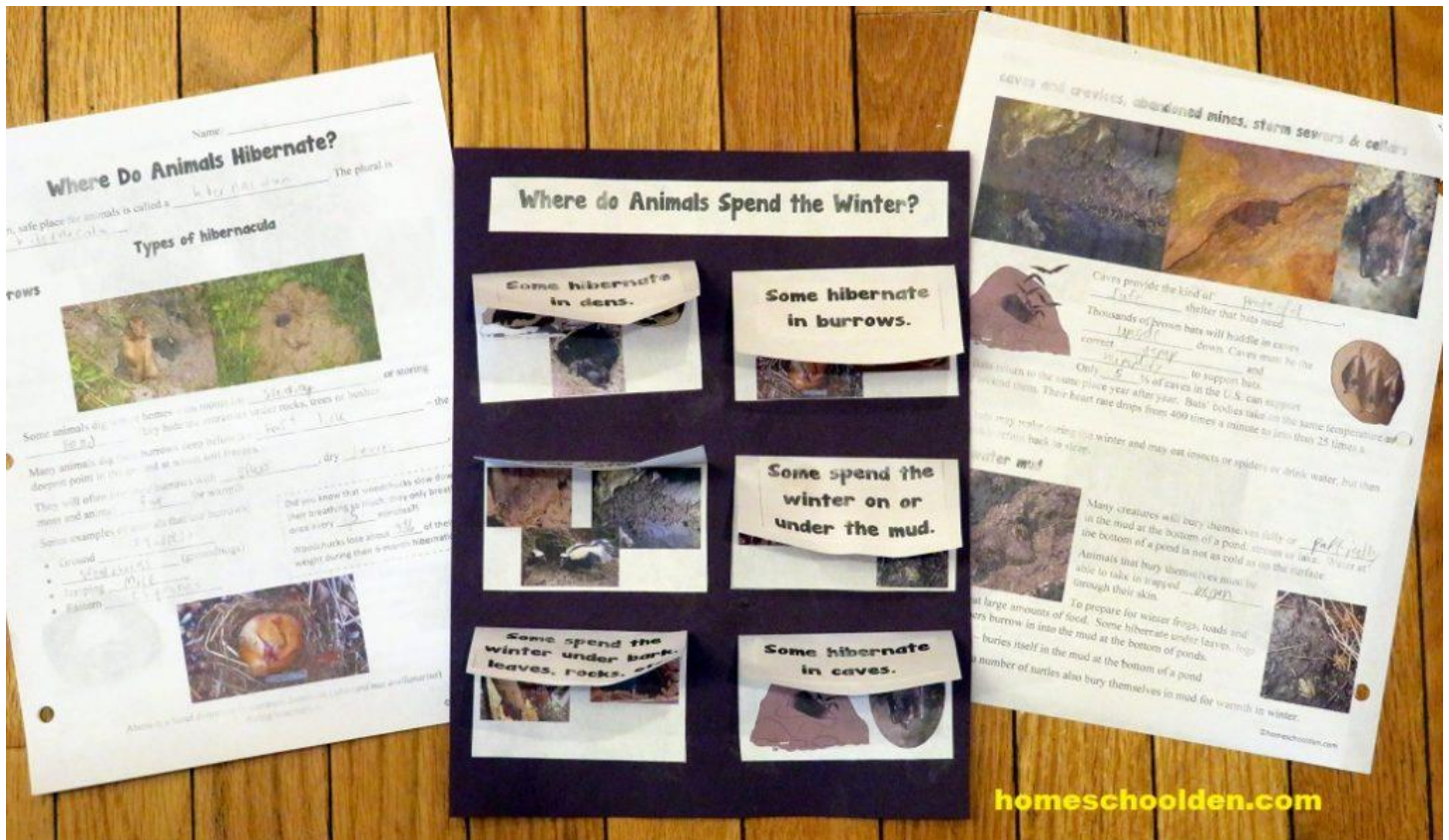
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Where do animals hibernate:

interactive notebook activity
matching page
tracing pages



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