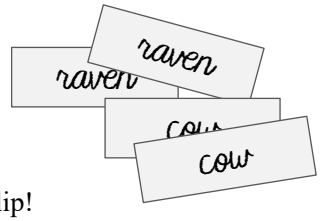
Games can be played indoors or out.
Invite children to prepare any materials needed for the games.

Animal Scramble



• Game preparers make a list of animals. The list equals half the number of players.
• Each animal used must make a "known" obvious calls/sound.
• Write the name of each animal twice – making pairs of slips.
• Slips in a hat, each child selects a slip, keeping it secret.
• The aim of the game is to find your partner animal by making the animal noise on your slip!

Variations
• Make slips with herds of animals (collective animal names).
• Play by animal movements instead of sounds (kangaroos hop, cows on all fours, birds flap wings, snakes creep…)
• Make slips with only local animals, endangered species, herbivores, carnivores, omnivores, etc.
• (Danger! Danger!) Make predator prey relationship slips – which could result in a food web (interdependencies). Instead of finding one another, it can be an active tag oriented game where the prey tries to hide form predator while looking for their prey. Add in plants for herbivores. Prey could also be made "safe" by gathering in packs of 3 or 4 so a predator will have to look to another prey.

Animal Who Am I / Question and Answer Game

• Make slips of animals (not pairs this time).
• This time slips are taped or held to the forehead of each player. The players do not know their animals.
• The children use the questions and answers from the animal question game to puzzle out their animal. Children go from person to person asking questions about their animal until they zero in.

Variations
• Could pair children up.
• Animals could be selected in any of the ways listed above.
• These games may lead to animal research. The questions and answers help scaffold first researches. Questions can be turned to topic sentences. Answers can be elaborated upon to make paragraphs. Word choice can be elaborated upon using more technical language, *i.e. The humpback whale lives in the water or The humpback whale is a marine mammal.*

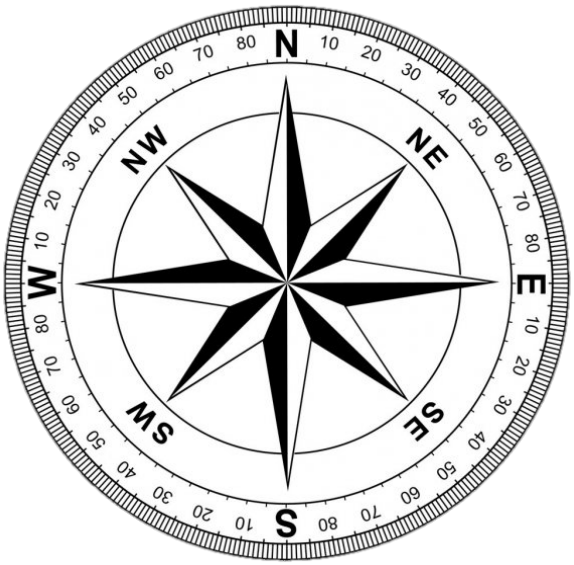
In what element does this animal live?
In the water / aquatic /marine
On the land / terrestrial
In the air / aerial

How does this animal care for their offspring?
They suckle their young/offspring.
They do care for their young/offspring.
They provide for their young/offspring.

How does this animal reproduce?
Born alive / viviparous
By means of eggs / oviparous
By means of eggs and live birth/ovoviviparous

What does this animal eat?
They eat plants (herbivores).
They eat animals (carnivores).
They eat both plants and animals (omnivores).

How does this animal move?
By using limbs to walk
By using limbs to fly
By using limbs to swim
By other means



Beginner Orienteering Activity Cards
(for pre-map use activity)

The asterisk* denotes where this group (Group B) begins the course/circuit.

Group A starts at Target 1
Group C starts at Target 3
Group D starts at Target 4

◯ Group Names	Target 1	* Target 2	Target 3	Target 4	Target 4
Ella					
Ben					
Louis					
Molly					

◯ Target 1	Target 2	Target 3	Target 4	Target 4
• **Go 100 feet** • **at 320°**	• Go 250 feet • at 90°	• Go 75 feet • at 200°	• Go 300 feet • at 206°	• Go 50 feet • at 45°
Stamp your card! **Meet back at home base after going through all the targets in order.**				

Orienteering / Treasuring Hunting:
is cross-country navigation using a map and compass. It can be played as a contest/race in teams or the clock or the chance to explore, problem-solve, and enjoy playing with friends

Preparations

- How to Pace a Distance
- How to Use a Compass (including nomenclature)
- How to Take a Bearing
- How to Go around an Obstacle on a Course
- Reading and Following Directions
- Reading a Simple Map, Recognizing Map Symbols
- Working in a small group
- How to read maps, incl. topographical maps (later).

Pacing a Distance

- Precisely mark off a 10 foot (or 3 meter) distance on floor/ground with tape
- Each paces the distance five times (1 pace = 1 natural step)
- Each person finds their average pace length
- Compare pace length with friends

How to Use a Compass (simple/low stress version)

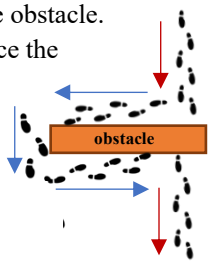
- Tell the Key Story: *The Story of the Star*
- Tool Use (there are lots of website explanations!)
- Play compass games.

How to Take a Bearing ***(a precise way to describe one location relative to another)***

- Place compass flat on the palm, away from body.
- Point the direction-of-travel arrow toward an object in the distance in the direction of travel.
- Rotate the (azimuth) ring to line up the orienting arrow with North/the magnetic needle. Point the North end of the needle (usually red).
- Look for the degree mark around the outer (azimuth) ring where it lines up with the direction-of-travel arrow. That degree mark is the bearing (direction of travel). Go.

How to Go around an Obstacle (a "deviation")

Learning to move at 90° angles around obstacles:
- Count paces up to obstacle (remember the #).
- Turn 90° right or left, count these paces in straight line to end of obstacle (remember the #).
- Turn 90″ to continue around the obstacle.
- Turn 90″ one more time and pace the same number as the first turn, to take you back to the point at back of the obstacle to continue along the original bearing.



Rules

Group stay together: no one goes ahead, no left behind.
Each checkpoint ("control") is visited in order.
The group hole punches their direction card.
Groups do the course by rotating starting points – or – stagger starting times.
Groups all meet at an agreed upon location at the end.

^

Laying Out a Course

Initially work in a somewhat open area with a few turns & corners.
Eventually include obstacles that get in way so they can practice the skill of "going around" while staying on course.
Move to larger areas where the children are starting in different locations and not seeing each other continuously

^

Orienteering Progression

First time

- 3-5 checkpoints
- Mark checkpoints with a cairn or flag
- Leave a different paper punch (rubber stamp and ink pad works too) at each location
- Orient the children/orienteer the course together

Second time

- 3-5 checkpoints ("controls")
- Mark each with a cairn or flag or just the paper punch attached to a board by a cord.
- Use a different paper punch (rubber stamp & ink pad works too) at each location
- Form pairs/small groups (divide groups by number of checkpoints. 2-4/group is a good target)
- Each group is given a card with coordinates for each location.
- Rotate the start location: if 3 check points:
Grp.1 from checkpoint 1 to 2 to 3 / Grp.2: 2 to 3 to 1 / Grp.3: 3 to 1 to 2

Subsequent times

- 5 or more checkpoints
- Include some obstacles to go around (having practiced the skill)

^

Variations and Challenges

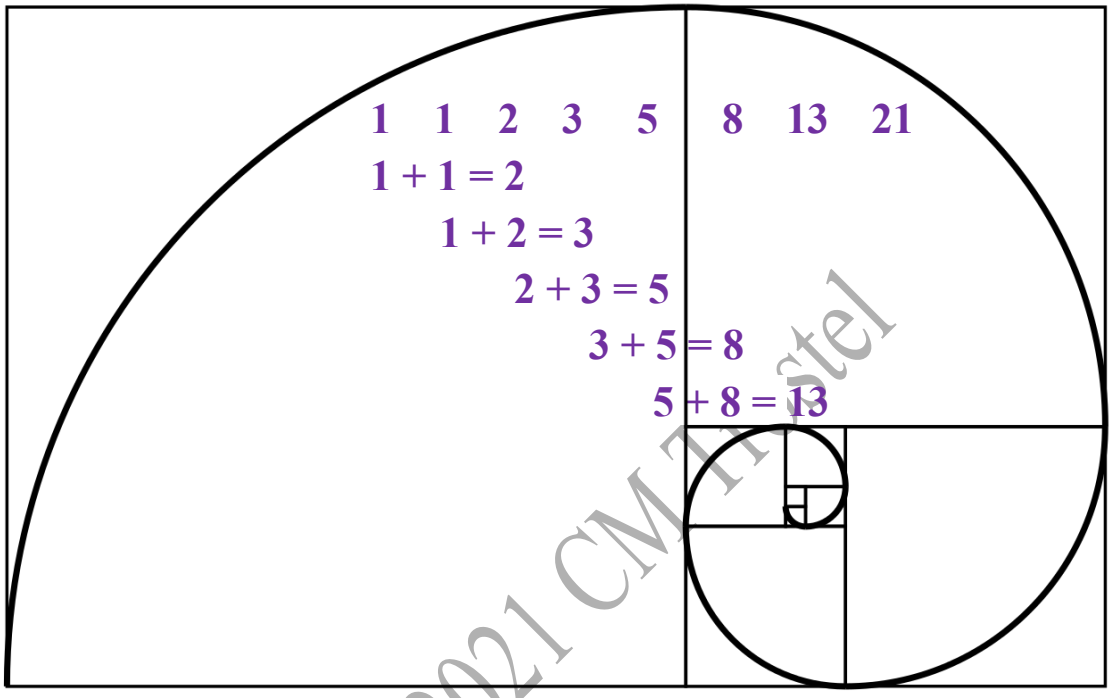
Children set the courses once they get the hang of it.
Use a map for locations vs. a card of directions & learn to take a bearing on a map
Blindfolded partner directs sighted partner
Include sound, texture, color clues
Do as a night hike at camp with or without headlamps
Do on cross-country skis, bikes, etc.
Locations can vary and be both indoors as well as outdoors.

A Fibonacci Walk/Hike:

The Fibonacci sequence is an occasional pattern in nature – but <u>not a rule</u> for everything in nature.

Memorize the initial sequence below. Take a walk with the children and keep a sharp lookout for this pattern seen in some places in nature. Alas, the very clever mathematician, Keith Devlin will show you that the Fibonacci sequence is not "nature's (or "God's) rule" for the universe. Still, it's out there and a delightful discovery nonetheless. Your walk may start out or evolved into a scavenger hunt!

Finding Fibonacci: The Quest to Rediscover the Forgotten Mathematical Genius Who Changed the World, Keith Devlin
Princeton University Press, 2017 ISBN: 9780691174860



Petals **Lobes** **Cones** **Bees …**

3 5 8 13 21

Compass Games

Introduction
Tell a Key Story: *How the Compass Shaped the World.*
Show the children how to magnetize a needle and float on a horizon of water in a flask.

Cardinal Directions
A great activity to introduce the skill of orienteering!
Everyone should have their own compass (put on a string and wear around the neck).

Discuss the purpose of a compass.
Demonstrate how to determine the direction of North.
Invite a child to select an object that lies directly north or place a cone or object in a location north of the group.
The group determines where "south" is. Likewise, place an object/cone there.
Repeat with east and west. Identify the sun rising in the east and the setting in west.
Assemble to group un the center of the playing area. The leader calls out 'North',

A leader is identified. They calls out one direction at a time: "north," "south," "east," or "west".
The group runs to and around the obstacle.

Variations
• Use a variety of locomotor skills to move to and around the cones.
• Include the directions of NE, NW, SE, SW.
• Pose questions instead of calling out points of a compass. *What direction does the sun rise? What direction does the sun set? What direction is the ocean? What direction is a (particular) state? Point to a 9particular) river. Where is the park? Point to home. What direction is a local landmark…*

A Few Material Activities & Explorations
• Geometry: positions of straight lines, types of angles, measurement of angles, use of a geometry compass and protractor, study of the circle, pi.

• Geography: Native ways of knowing (science among indigenous peoples), map making (including in 3 dimensions), making compass roses (with various media), compass rose story, map reading, different types of maps, typographical map (how made and how used and how read).

• History: exploration and discovery/, migrations

• Biology: how animals migrate/locate and follow directions, how animals establish and maintain territories, predator-prey games, tropism: plant movement responses to environment (heliotropism, lunar tropism, phototropism, etc.) include corolla, root systems, stems, leaves, etc.

• Music: *Follow the Drinking Gourd*, compose songs on tone bars, "up and down" on the scales, using note names for directions for compositions, etc.

• Language: nomenclature for the compass and directions – including etymology, stories as indicated above, labeling maps, reading maps, writing orienteering cue cards, etc.

• Math: addition and subtraction of angles (could be used to make tricky cue cards for orienteering), calculation of pi using the compass as an example, constructing compasses, constructing maps to scale, understand ding and using scale, use of number lines – including positive and negative signed numbers (on paper, walking, using for orienteering), etc.