# STEM Stage 1 workbook – Outside game

Name:

Class:

## Overview

You will learn how playing outside throughout the year is affected by many things, such as the seasons. You will design a game that can be played by children all year round.

## Resources

### Activities 1 – 10

* Stage 1 student workbook, lead pencil for writing, safety scissors, glue, coloured pencils and markers.

### Activity 11

* Family members, game setup and equipment, camera (optional), family feedback sheets (Stage 1 student workbook)

## Activity 1

During this activity you will understand how the seasons can change living things and how Aboriginal people used the different seasons to live.

 Resources – Lead pencil for writing, safety scissors, glue, coloured pencils and markers, camera (optional)

### Let’s talk about the weather

#### How does the weather change what we wear?

On the table below:

* Colour the boxes with your red pencil if the clothes are for summer.
* Colour the boxes with your blue pencil if the clothes are for winter.

|  |  |  |  |
| --- | --- | --- | --- |
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| Green Beanie["Green Beanie"](https://www.flickr.com/photos/16391511@N00/16991741746) by [pni](https://www.flickr.com/photos/16391511@N00" \t "_blank) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) | Community Ed swimming["Community Ed swimming"](https://www.flickr.com/photos/63046469@N00/188277231) by [Northfield.org](https://www.flickr.com/photos/63046469@N00) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) | purple thongs  ["purple thongs"](https://www.flickr.com/photos/67953162@N00/2105518472) by [Leonard J Matthews](https://www.flickr.com/photos/67953162@N00) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) | Work Boots  ["Work Boots"](https://www.flickr.com/photos/19779889@N00/49821957638) by [arbyreed](https://www.flickr.com/photos/19779889@N00" \t "_blank) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) |
| Steven Alan Dr Scholls fashion sandals for men  ["Steven Alan Dr Scholls fashion sandals for men"](https://www.flickr.com/photos/73034986@N00/14473105011) by [di0genes2001](https://www.flickr.com/photos/73034986@N00) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) | Levi's 501 STF Raw Jeans: one year  ["Levi's 501 STF Raw Jeans: one year"](https://www.flickr.com/photos/96763751@N00/5246014053) by [rogerwshaw](https://www.flickr.com/photos/96763751@N00" \t "_blank) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) | Zoey Frank - White Jacket  ["Zoey Frank - White Jacket"](https://www.flickr.com/photos/45482849@N03/8585643074) by [Gandalf's Gallery](https://www.flickr.com/photos/45482849@N03) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) | Penguin Snowflake Xmas Knitted Jumper  ["Penguin Snowflake Xmas Knitted Jumper"](https://www.flickr.com/photos/123780959@N07/15626898828) by [wearalldotcom](https://www.flickr.com/photos/123780959@N07" \t "_blank) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) |
| Elegant Hat  ["Elegant Hat"](https://www.flickr.com/photos/57768536@N05/15941008234) by [Theen ...](https://www.flickr.com/photos/57768536@N05" \t "_blank) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) | woven scarf  ["woven scarf"](https://www.flickr.com/photos/8267453@N05/5343975121) by [lovefibre](https://www.flickr.com/photos/8267453@N05" \t "_blank) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) | It's the little things... like UGG slippers  ["It's the little things... like UGG slippers"](https://www.flickr.com/photos/77654185@N07/31269355773) by [Kerri Lee Smith](https://www.flickr.com/photos/77654185@N07) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) | sunglasses  ["sunglasses"](https://www.flickr.com/photos/34910480@N04/3287600579) by [natalie εïз](https://www.flickr.com/photos/34910480@N04" \t "_blank) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) |

#### The trees that change

* The leaves on some trees change to different colours.
  + Some turn red.
  + Some turn yellow.
  + Some turn brown.
* Then the leaves fall to the ground.

This is like the tree is hibernating. These are called **deciduous** trees.

Some trees keep all their leaves the whole year round. They are called **evergreen** trees.

**Autumn** is the best time to find out if a tree is deciduous or evergreen.

* Go outside to your backyard or a nearby park with adult supervision.
* Find a deciduous tree and an evergreen tree.
* Sketch the trees in the table below or take a picture of each tree and glue them in.

|  |  |
| --- | --- |
| Deciduous | Evergreen |
|  |  |

#### The way some animals behave

Some animals **hibernate** (sleep) through winter because there isn’t enough food.

Other animals **migrate** (move to warmer areas) when winter comes.

Look at the pictures of some animals.

* write **H** for hibernate or **M** for migrate in the row under each animal
* discuss any that you don’t know with your family and see what they think
* if you have access to the internet, research the animals you don’t know

|  |  |  |
| --- | --- | --- |
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| Breaching Humpback Whale (Megaptera novaeangliae)  Humpback whale  ["Breaching Humpback Whale (Megaptera novaeangliae)"](https://www.flickr.com/photos/22170893@N06/9660851285) by [Gregory 'Slobirdr' Smith](https://www.flickr.com/photos/22170893@N06) is licensed under [CC BY-SA 2.0](https://creativecommons.org/licenses/by-sa/2.0/?ref=ccsearch&atype=rich) | Brown Bear  Brown Bear  ["Brown Bear"](https://www.flickr.com/photos/19695731@N00/9685014970) by [surfneng](https://www.flickr.com/photos/19695731@N00" \t "_blank) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) | Short-Beaked Echidna (Tachyglossus aculeatus)  Short beaked echidna  ["Short-Beaked Echidna (Tachyglossus aculeatus)"](https://www.flickr.com/photos/121917432@N02/31857869397) by [Wild for Wildlife](https://www.flickr.com/photos/121917432@N02) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) |
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| 313/365/3600 (April 20, 2018) - Squirrels in Ann Arbor at the University of Michigan (April 20th, 2018)  Squirrel  [Squirrels in Ann Arbor at the University of Michigan (April 20th, 2018)"](https://www.flickr.com/photos/7702423@N04/27718871268) by [cseeman](https://www.flickr.com/photos/7702423@N04" \t "_blank) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) | Pygmy possum  Pygmy Possum  ["Vanaf nu is de pygmy possum mijn spirit animal."](https://www.flickr.com/photos/51239319@N00/17731447812) by [Bopp](https://www.flickr.com/photos/51239319@N00) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) | Adelie penguins  Adelie Penguin  ["Adelie penguins"](https://www.flickr.com/photos/96256161@N00/7079325869) by [ksuyin](https://www.flickr.com/photos/96256161@N00" \t "_blank) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) |
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| Arctic Tern  Arctic Tern  ["ArcticTern"](https://www.flickr.com/photos/50079771@N08/7875462398) by [Rainbirder](https://www.flickr.com/photos/50079771@N08" \t "_blank) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) | Monarch (Butterfly), Virginia  Monarch Butterfly  ["Monarch (Butterfly), Virginia"](https://www.flickr.com/photos/8769311@N02/5076563921) by [Dave Govoni](https://www.flickr.com/photos/8769311@N02) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) | Pacific Black Duck  Pacific Black Duck  ["Pacific Black Duck"](https://www.flickr.com/photos/49828152@N00/13281896765) by [0ystercatcher](https://www.flickr.com/photos/49828152@N00) is licensed under [CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/?ref=ccsearch&atype=rich) |
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#### Aboriginal seasons

Aboriginal people name 6 seasons of the year rather than the 4 we mainly know and use- summer, autumn, winter and spring.

Here is an example of a seasons chart from the Noongar people of Western Australia who use this to track the weather through the year



Source: [Australia’s South West](https://www.australiassouthwest.com/south-west-inspo/six-seasons-south-west)

Use the Noongar seasons chart to answer these questions:

What are the 6 Noongar seasons?

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Name the Noongar season when fishing would be best? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Name the Noongar season that is the driest and there is less water? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Name the Noongar season that is the windiest. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Name the Noongar season for your birthday. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* How do you think Aboriginal people used these seasons to change how they lived? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Activity 2

During this activity you will use poetry to explore your favourite season.

Resources – Lead pencil for writing, coloured pencils and markers

### Let’s rhyme your favourite season.

Using the poem below called **‘My favourite season’**,

* fill in the missing words to make it your own
* use the hint box at the end for some clues

#### **My favourite season**

Oh, how I love the 1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ time,

To play the day away.

On the 2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ I always climb,

To watch the 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ clouds sway.

The weather is 4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which I like best,

But to keep my 5.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ quite right,

I like to wear my 6.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_when dressed,

To keep playing until the night.

**Hints:** 1. A season name; 2. something to climb around a playground; 3. a word to describe a cloud in your season; 4. a word to describe how the season feels; 5. a part of your body that needs protecting in your season; 6. the name of the clothing to protect that part of your body

* What **clothing** did you choose to wear? How did this **protect** you from the weather?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Draw a picture of yourself in your poem.
  + Don’t forget you are climbing something to watch an interesting type of cloud.
  + Make sure you are wearing the clothing you chose in the poem.
  + Add some pictures around you to show which season you are in.

## Activity 3

During this activity we will explore the positives (the good things) and the negatives (the things that aren’t good) about playing outside in summer and winter.

Resources – Lead pencil for writing, coloured pencils and markers

What’s good about playing outside? What’s not so good?

* Think about 2 positive and 2 negative ideas about playing outside for both.
* Look at this example

|  |  |
| --- | --- |
| Summer | |
| Positive +  1. Playing at the beach | Negative –  1. Becoming sunburnt in the sun |

* Write your ideas in these boxes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Summer | | Winter | | |
| Positive + | Negative - | | Positive + | Negative - |
|  |  | |  |  |
|  |  | |  |  |

* Think about your negative ideas - they are almost like problems.
* Can you solve these problems? Here’s an example:

|  |  |  |
| --- | --- | --- |
| Problem | Solution | |
| 1. Becoming sunburnt in the sun | | Put on sunscreen lots of times during the day |

Now try to solve your problems.

|  |  |  |
| --- | --- | --- |
| Problem | Solution | |
| 1. | |  |
| 2. | |  |
| 3. | |  |
| 4. | |  |

## Activity 4

We will learn about how children enjoy different parts of the playground. We also think about how younger children feel when using big playgrounds for the first time.

Resources – Lead pencil for writing, safety scissors, glue, coloured pencils and markers

### Let’s talk about how children use playgrounds in different ways (STEM empathise).

* Think about when you were much younger and you went on a big playground for the first time.
* Think about your little brothers, sisters or cousins when they go to a playground with you.
* Are they sometimes unsure or even scared of the playground activities?
  + Draw a large tree below.
  + Draw large leaves on the tree and write adjectives in leaves that describe how younger children might feel about big playground activities. For example, excited, sad, brace, amazed, confident, confused.

Tree:

Children enjoy lots of different types of activities at playgrounds. Not everyone likes the same activity and not all children can play on all parts of a playground.

* Read about the children below and think of a playground activity they could do that interests them. Record the activities in the box.

|  |  |
| --- | --- |
|  | |
| girl with brown hair and a red dress  Hi, my name is Georgia and I’m 7 years old. I like to climb!  <https://cdn.pixabay.com/photo/2013/07/13/12/38/girl-160019_960_720.png> | Blond boy with a red shirt sitting in a wheelchair  Hi, my name is Jacob and I’m 9 years old. I love to swing high!  <http://3.bp.blogspot.com/-c80x-Pe7-uc/TkrwlxLzCAI/AAAAAAAAAJM/JD0NhXkbdtE/s1600/school_wheelchair_boy1.gif> |
| Boy with yellow shirt and red cap  Hi, my name is Luca and I’m 6 years old. I love playing with puzzles in a quiet place.  <https://cdn.pixabay.com/photo/2016/04/01/10/52/blonde-1300066_640.png> | girl with black hair in a striped dress  Hi, my name is Priya and I’m 5 years old. I enjoy playing pretend.  <https://openclipart.org/image/2400px/svg_to_png/171797/annie.png> |

## Activity 5

We will explore the types of materials playgrounds and equipment might be made of.

Resources – Lead pencil for writing, coloured pencils and markers

### Let’s investigate what materials are best for playground equipment.

Non-living things are usually

* made by a human
* don’t grow
* don’t breathe
* move without help.

Find as many non-living things as you can from your house or backyard. Write them in the table below.

|  |  |
| --- | --- |
| Non-living things | |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Non-living things are made from materials.

These materials can be described as

* soft
* strong
* hard
* heavy (and many more)

These are called the PROPERTIES of materials.

Below is a list of some materials non-living things can be made from.

|  |  |  |  |
| --- | --- | --- | --- |
| Non-living things | | | |
| metal | forks, keys, jewellery, cars | wood | Tables, chairs, fences |
| glass | Windows, cups, vases | brick | Houses, buildings, walls |
| crockery | Mugs, plates, bowls | concrete | Paths, floors |
| plastic | Toys, buckets, Lego, bottles | wool | Jumpers, blanket and carpet |
| paper | Newspaper, toilet rolls, cards | material | Curtains, shirts, socks |

Let’s think about the playground:

* Would any of these materials be good to use on a playground or for equipment?

Using the non-living objects you have found around your home, think about what they are made from and their properties to complete the cross/tick information table below.

The first 4 have been done for you.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Properties of materials | | | | | | | |
| **Object** | **Material** | **Is it hard and doesn’t change shape?** | **Is it soft or squishy?** | **Does it smash, break or rip easily?** | **Is it heavy?** | **Is it light?** | **Does it change shape when it is wet?** |
| Mug | Crockery | green tick | red cross | green tick | red cross | green tick | red cross |
| Bicycle | Metal | green tick | red cross | red cross | green tick | red cross | red cross |
| Bed sheet | Material | red cross | green tick | green tick | red cross | green tick | green tick |
| Toilet roll | Paper | red cross | green tick | green tick | red cross | green tick | green tick |
|  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |

Answer these Yes/No questions while thinking about your information table above.

1. Should a playground be hard enough so it doesn’t change shape? \_\_\_\_\_\_\_\_\_\_\_\_

2. Should the playground be light enough to blow away in the wind? \_\_\_\_\_\_\_\_\_\_\_

3. When the playground gets wet should it get soggy and lose its shape? \_\_\_\_\_\_\_\_

4. Should playground equipment be able to rip and break? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

List the materials you would use for a playground and why you would use them.

|  |  |
| --- | --- |
| Material | Why would you use it? |
| 1. |  |
| 2. |  |
| 3. |  |

## Activity 6

We will think about a playground timetable for the summer and winter.

Resources – Lead pencil for writing, coloured pencils and markers

### Making winter and summer playground timetables

Using the traffic light key, colour in the summer and winter playground times in the colours you think would be safest. Think about the weather during summer and winter as well as if there is enough sunlight to play without having an accident.

Red: STOP- don’t go outside to play, it is not safe.

Yellow: THINK- it might be ok, check with an adult first.

Green: GO- have fun if an adult says yes.

|  |
| --- |
| SUMMER |
| Early morning before breakfast |
| Morning after breakfast |
| Late morning- snack time |
| Midday |
| Early afternoon- after lunch |
| Late afternoon |
| Night |

|  |
| --- |
| WINTER |
| Early morning before breakfast |
| Morning after breakfast |
| Late morning- snack time |
| Midday |
| Early afternoon- after lunch |
| Late afternoon |
| Night |

## Activity 7

How can we play in the spring and autumn without using big playground equipment?

Resources – Lead pencil for writing, coloured pencils and markers

### Activities for spring and autumn without a playground

Think of two activities children could do in the spring and autumn without using big playground equipment.

Use the environment around you in these seasons.

For example, in winter children could use food colouring to make patterns in the snow.

|  |  |
| --- | --- |
| Fun activities without playgrounds | |
| **Spring** | **Autumn** |
|  |  |
|  |  |

## Activity 8

### Let’s talk about the question (STEM define)

**Ask this driving question: How can we invent an outside game that can be played in both the winter and summer seasons?**

What does invent mean? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What can we change in a game so we can play it in both summer and winter?

Think about:

* the **space** we play in
  + does the game need to be moved to a concrete area in the winter when it is wet with rain or slippery with snow?
  + can the game be played under shelter if it’s raining or very hot?
  + where’s the best place to play this game when it’s very hot or very cold?
* the **equipmen**t we use
  + if we play near the beach in summer should we use an inflatable ball that doesn’t sink?
  + would metal equipment be extra cold in winter, or extra hot in summer?
  + can we use different types of equipment for the game? could it be made from materials we find at home like bubble wrap or pool noodles?
* the **clothes** we wear to protect ourselves from the weather
  + hat in Summer
  + gloves in Winter
* the **rules** of the game
  + how many people can play the game?
  + the duration of the game
  + do people need a water break if it’s hot?
* the **times** of day when the game can be played safely
  + heat
  + cool
  + sunrise
  + sunset

## Activity 9

### Let’s think of some ideas (STEM ideate)

Draw and label 4 crazy game ideas. Be quick!

Talk about your ideas with an adult.

Circle the best idea that can be changed to make it suit both summer and winter. Think about the **SPACE, EQUIPMENT, CLOTHES, RULES AND TIMES.**

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |

## Activity 10

### Let’s make and test our best idea (STEM prototype)

Use the spaces below to plan, draw, label, and explain your game.

Draw and label a picture of your game in the large box below and then explain how your game will change for summer and winter in the boxes to the left and right.

**WINTER**

**Space** (where it is played)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Equipment (**materials)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Clothes** (protect from the weather)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Rules** (length, numbers, drink break)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Time** (time of day)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**SUMMER**

**Space** (where it is played)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Equipment (**materials)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Clothes** (protect from the weather)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Rules** (length, numbers, drink break)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Time** (time of day)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Design, make, find or select any equipment you might need for your game.

## Activity 11

### Let’s test your game with your family (STEM test and share)

* **Ask some family members to play your game with you in different types of weather over a week. Make sure you have adult supervision.**
* **Prepare the game setup for either summer or winter, or both if possible**
* **Play your game and have fun! Take some pictures if you can and paste them below.**
* **Ask your family members to give you feedback on your game using the feedback questions on the next page.**
* **Choose 3 ‘fixes’ to make your game better.**
* **Share your game with your teacher through your booklet and a conference via phone, Zoom or MS Teams.**

### Family Feedback Page

Have the family members who played your game with you fill out the feedback below. From a scale of 1-5 (1 = disagree, 5= agree) please answer the questions by ticking the boxes and leaving a comment at the end.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Family member 1 | | | | | |
|  | **1** | **2** | **3** | **4** | **5** |
| I understand how the game is played |  |  |  |  |  |
| I enjoyed playing the game and had fun |  |  |  |  |  |
| The changes made to the game for the different seasons worked well |  |  |  |  |  |
| Comments or suggestions: | | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Family member 2 | | | | | |
|  | **1** | **2** | **3** | **4** | **5** |
| I understand how the game is played |  |  |  |  |  |
| I enjoyed playing the game and had fun |  |  |  |  |  |
| The changes made to the game for the different seasons worked well |  |  |  |  |  |
| Comments or suggestions: | | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Family member 3 | | | | | |
|  | **1** | **2** | **3** | **4** | **5** |
| I understand how the game is played |  |  |  |  |  |
| I enjoyed playing the game and had fun |  |  |  |  |  |
| The changes made to the game for the different seasons worked well |  |  |  |  |  |
| Comments or suggestions: | | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Family member 4 | | | | | |
|  | **1** | **2** | **3** | **4** | **5** |
| I understand how the game is played |  |  |  |  |  |
| I enjoyed playing the game and had fun |  |  |  |  |  |
| The changes made to the game for the different seasons worked well |  |  |  |  |  |
| Comments or suggestions: | | | | | |

Find 3 problems in your game that could be fixed. Fill out the problem and solution table below.

|  |  |  |
| --- | --- | --- |
| Problem | Solution | |
| 1. | |  |
| 2. | |  |
| 3. | |  |