



## Minor Challenge Set #3

**STEM Field:** Environmental Science

**Level:** Intermediate

**Challenge Name:** Whatever the Weather

**Project Cost:** 0-20 USD

### Materials Required:

- A computer with access to the Internet

### Duration:

- This challenge takes approximately an hour to finish, however, the time guideline is an estimation only, and students and mentors can complete the tasks around their schedules

## Introduction:

What's your favourite kind of weather? Do you prefer hot days when you can sit in the sun? Or snowy days when you can have snowball fights?

What about **extreme weather**?

Extreme weather includes hurricanes and wildfires. We need scientists who monitor the weather, called **meteorologists**, to look out for signs of extreme weather. They can warn us so we can be prepared!

Extreme weather can cause us a lot of problems. **Engineers** can help solve those problems. They create and build so that we have the tools to stay safe during an extreme weather event!

In this activity you will play the game "Extreme Weather". You will get to see what environmental scientists and meteorologists do to help

prepare for extreme weather including snow storms, hurricanes, and forest fires!

## Instructions:

- 1) Head to the website and click “get started”!

<https://www.nationalgeographic.org/interactive/extreme-weather/>



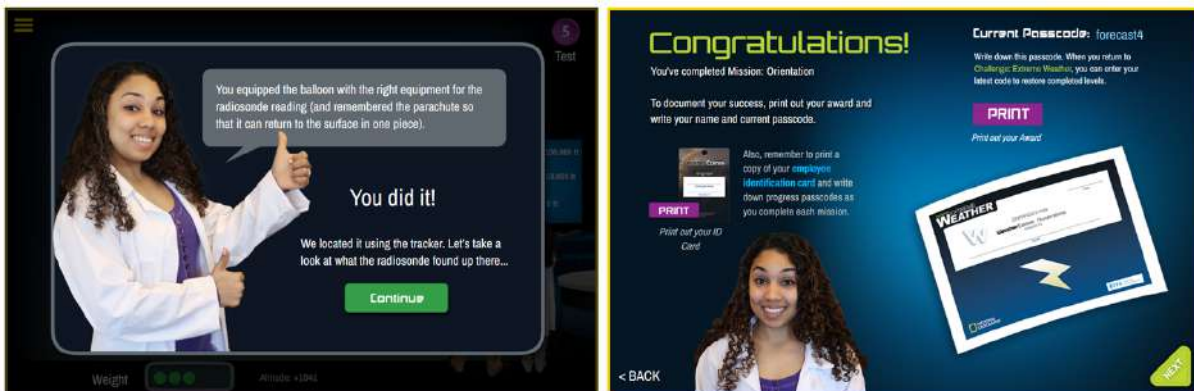
- 2) Clicking on the 3 bars brings up the menu where you can turn sound on or off, visit the main room, and see your progress.



- 3) There are 4 levels in total. First you should click on “Orientation” to learn the rules of the game. Here you will learn more about the engineering method and build your own weather balloon to take weather readings.



- 4) Once you finish a level you will get a “congratulations” screen! You will also get a chance to download and print a certificate and a special code to save your progress.



Next, you can explore 3 extreme weather conditions in whichever order your like:

- 5) **Winter storms** where you build a rescue vehicle which must be able to drive over the heavy ice and snow without crashing,



6) **Hurricanes** where you build a storm-proof structure and see whether it would survive a hurricane,



7) Lastly **Forest Fires** where you build an aircraft to help put out the fire before it spreads.



8) To finish the game, **collect all 4 charms** by completing all 4 activities and see them displayed on your desk in the main room!



## Reflection Questions:

- Are there any improvements you would make to this challenge?
- What real world application/s can you apply this challenge to?
- What are the key science and engineering concepts that relate to this challenge?
  
- What did you attach to your weather balloon and why did it mean your balloon had a successful launch?
- What did you equip your rescue vehicle with and how did it stop you crashing during the snowstorm?
- How did you make sure your structure survived the storm?
- How did you build your aircraft to put out the fires in time?

## Submission Guidelines:

- Submit a picture of your screen with all 4 charms you collected from completing the game. Include a short summary that addresses the reflection questions.

Note: Remember, if you want to upload pictures of your Minor Challenge that also include you, please check if it is OK with your parent or guardian first.

- The submission form is on the Minor Challenges page:  
<https://sciencechallenge.org.au/index.php/minor-challenges/>  
Fill out the details and make sure you upload your submission.

## Learn More! Resources:

- Explore extreme weather more with this short video  
[Extreme Weather | Met Office](#)
- When there is an extreme weather event, we rely on lots of people to keep us safe. Learn more about who they are in this short video  
[Weather warriors | Met Office](#)
- Have you ever noticed that all storms have names? Learn more about how and why storm are named  
[UK Storm Centre - Met Office](#)

Why not investigate more about extreme weather events and make a poster or mind map! Here are some links to get you started:

- [Hurricanes - Met Office](#)
- [Tornado - Met Office](#)
- [Blizzards and snow drifts - Met Office](#)
- [What is a heatwave? - Met Office](#)

## Bibliography:

- National Geographic *Extreme Weather*. [online] Available at:  
<https://www.nationalgeographic.org/interactive/extreme-weather/> [Accessed 18 Mar. 2012].