

Scratch Brainstorming

CLIMATE CHANGE CODING LESSON

GRADE 10

Meet Scratch

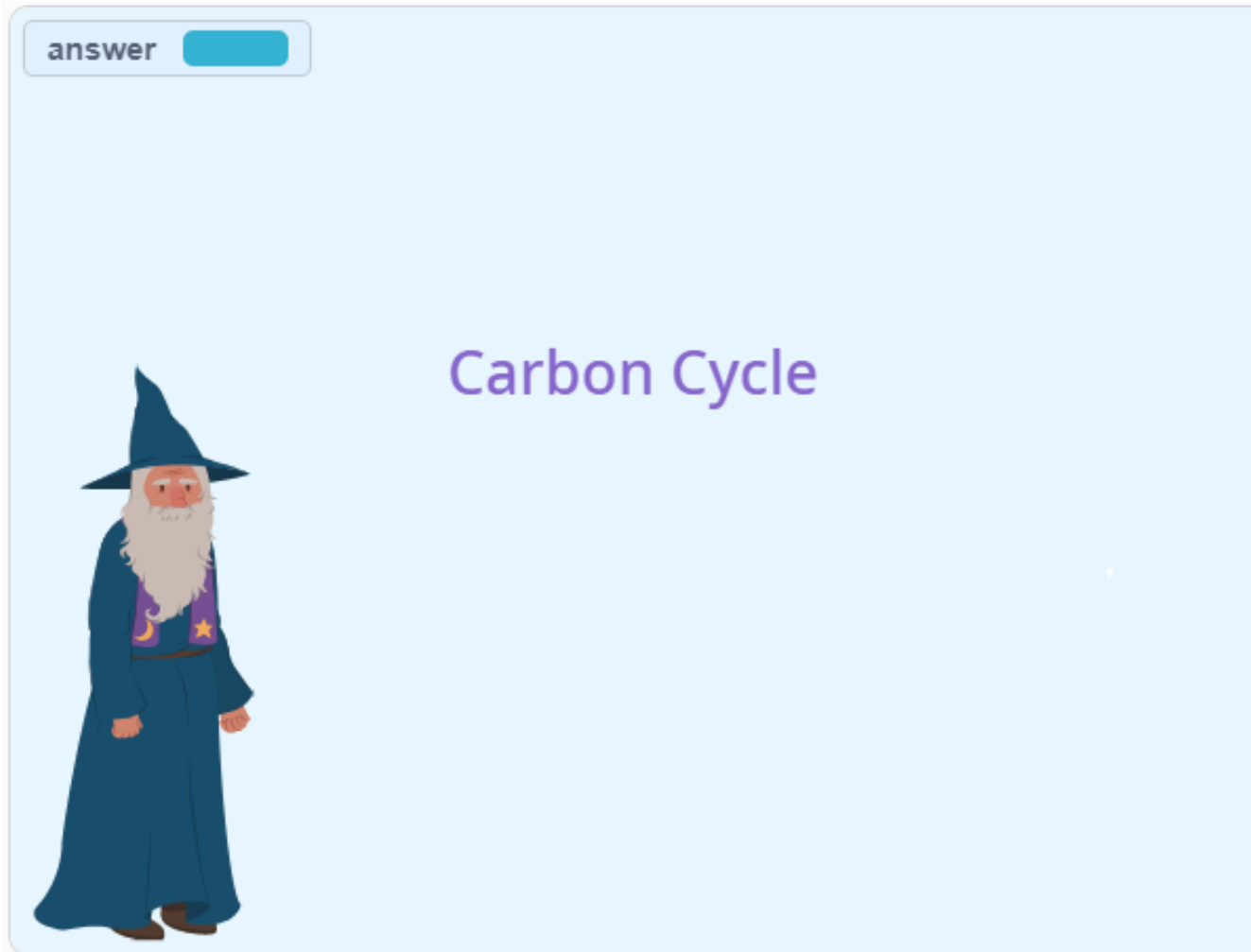
Scratch is a coding platform for all ages and subjects.

Students can use Scratch to learn 21st century skills while coding their own interactive stories, animations, and games.



Climate Change Coding Lesson

View and engage with the Scratch program, *Climate Change Carbon Cycle Terminology Example*, <https://scratch.mit.edu/projects/279144113/>



answer carbon cycle

Carbon Cycle

Circulation of carbon atoms through the Earth systems as a result of photosynthetic conversion of carbon dioxide into compounds by plants, which are consumed by other organisms, and return of the carbon to the atmosphere as carbon dioxide as a result of respiration, decay of organisms, and combustion of fossil fuels.



Scratch Brainstorming

Using the Scratch Brainstorming section of the *Climate Change Terminology with Coding* handout, collaborate to solve the pattern that will efficiently include the remaining terminology as digital cue cards: Albedo, Anthropogenic, Atmosphere, Heat Sinks, Hydrosphere.

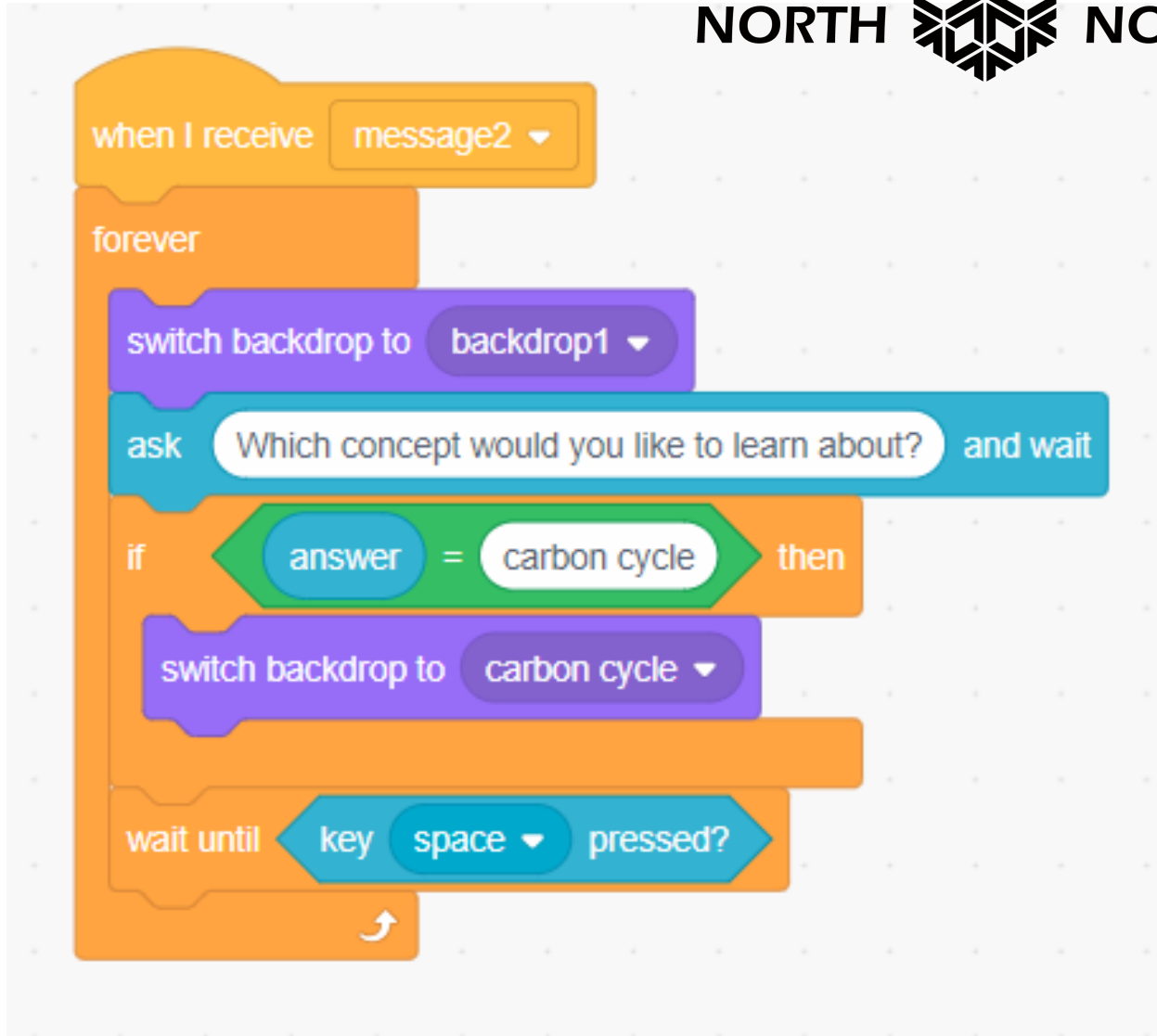
Remix Climate Change Scratch Program

Students will use computational thinking skills to remix the *Climate Change Carbon Cycle Terminology Example*, with the purpose of coding the remaining terminology into the program efficiently as digital cue cards.

<https://scratch.mit.edu/projects/279144113/>

 Remix

 See inside



```
when I receive message2
  forever
    switch backdrop to backdrop1
    ask Which concept would you like to learn about? and wait
    if answer = carbon cycle then
      switch backdrop to carbon cycle
    wait until key space pressed?
```

Remixing Hints

Examine the Example Climate Change Carbon Cycle Scratch code...

Remixing Hints

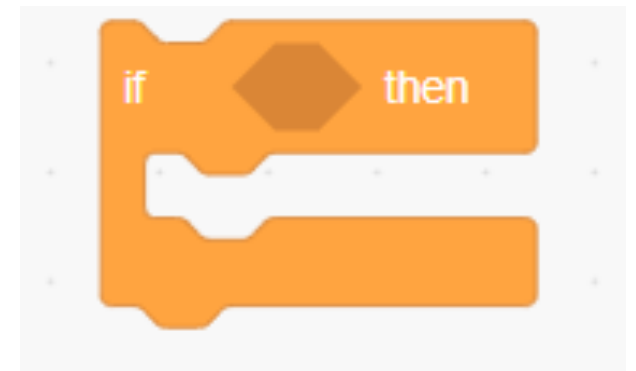
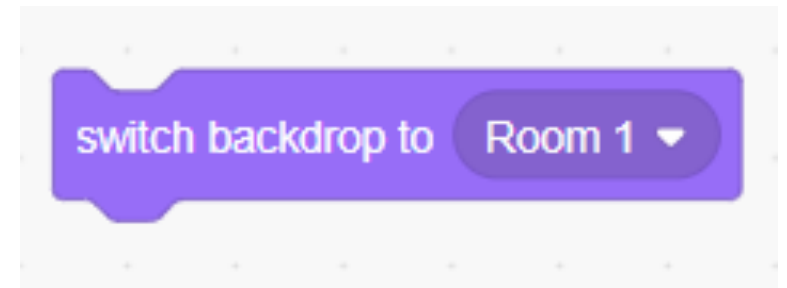
- Multiple backdrops are needed!
- The climate change terminology researched at the beginning of class is needed!



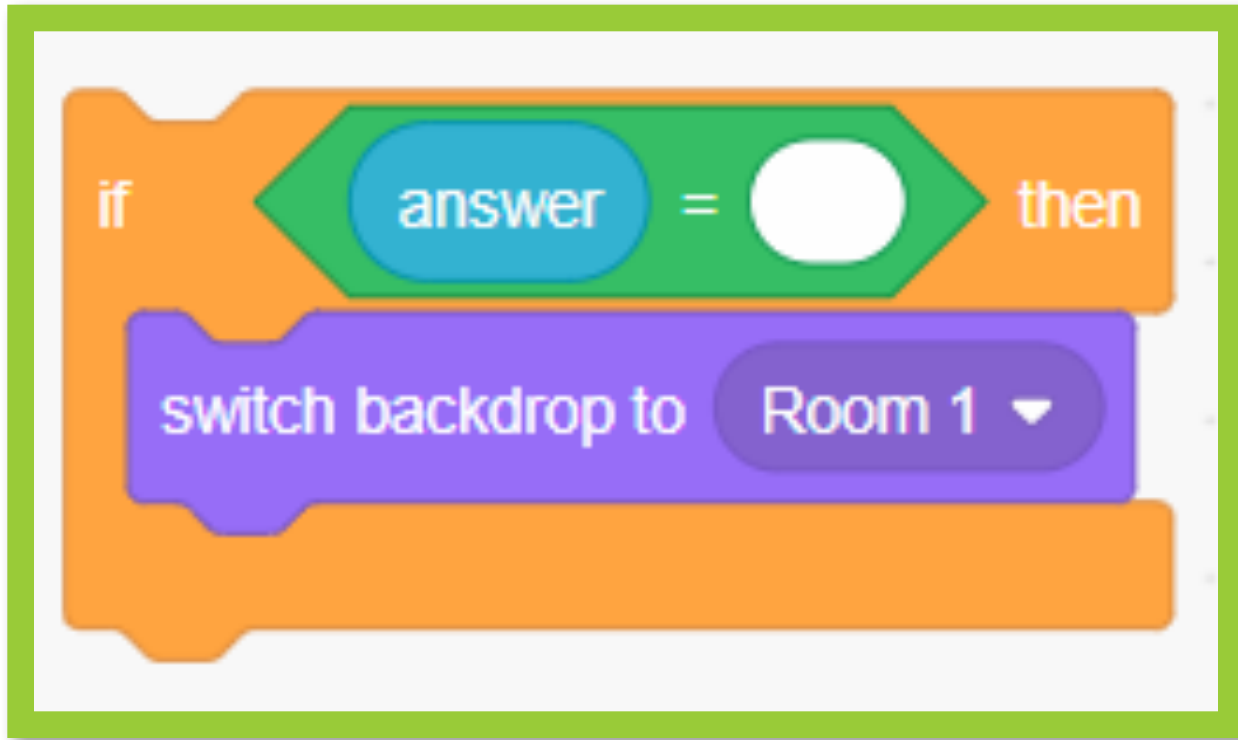
Remixing Hints

Additional Scratch codes are needed.

How should these Scratch codes be arranged?



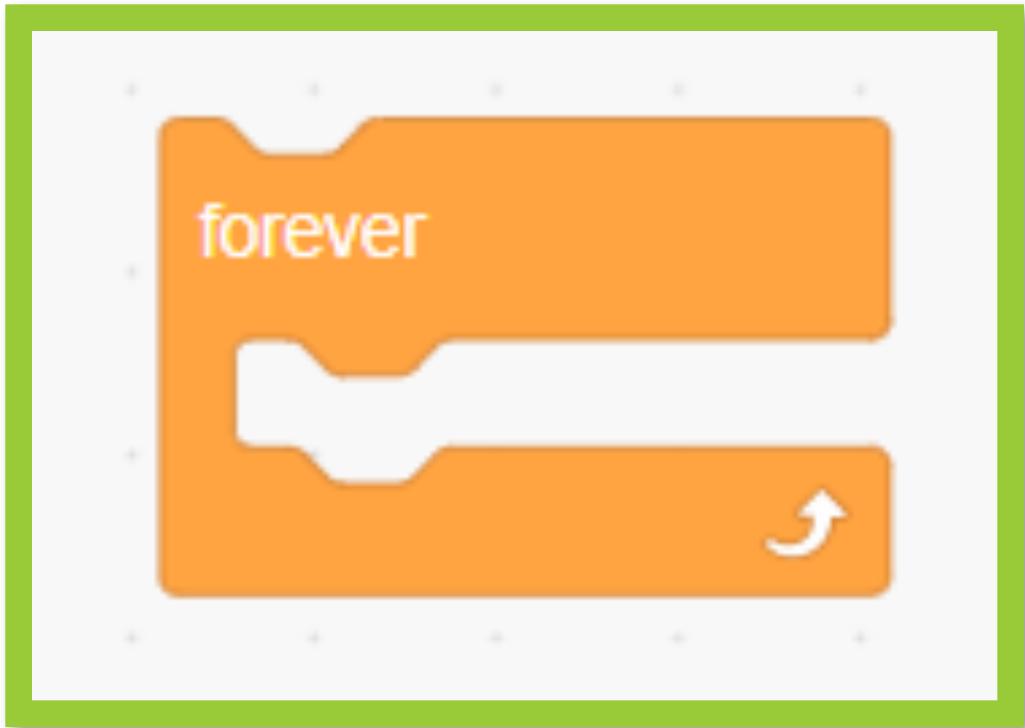
Remixing Hints



HOW MANY OF THESE SCRATCH SEQUENCES ARE REQUIRED?

WHAT SHOULD THE ANSWER EQUAL?

Remixing Hints

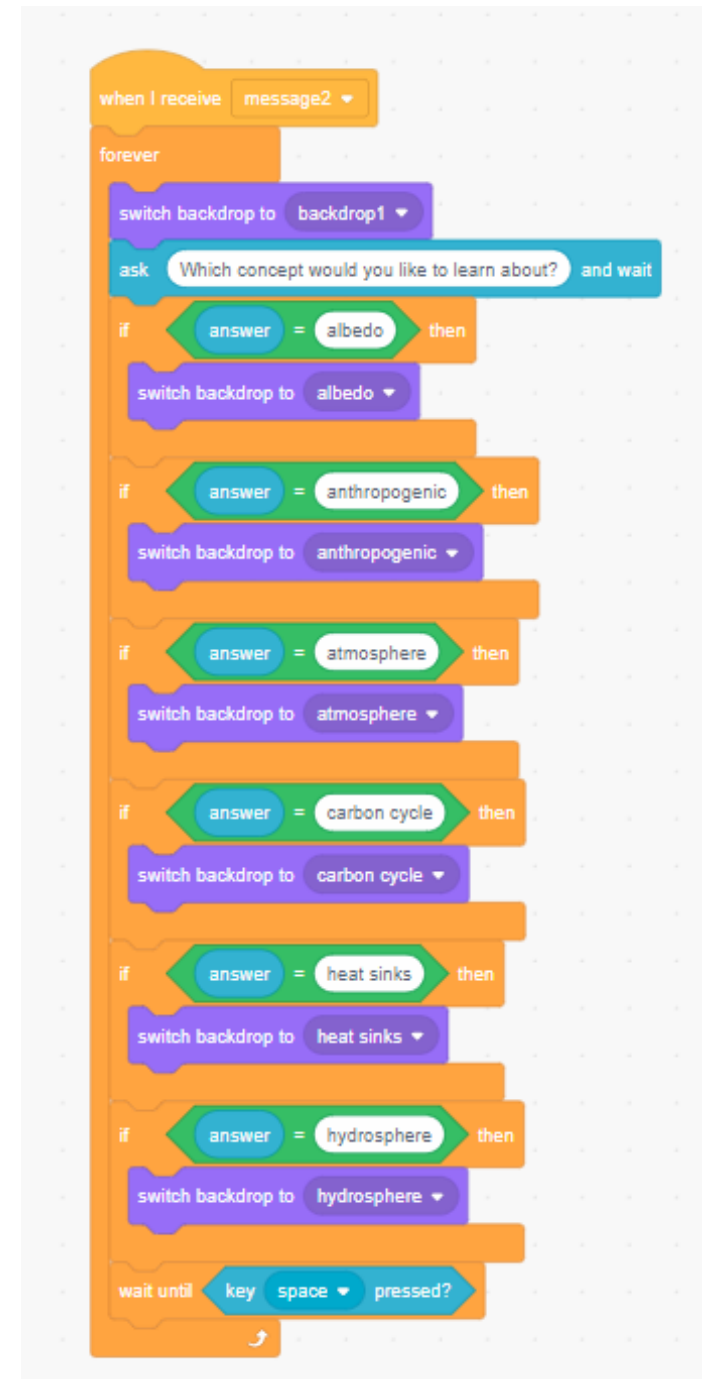


What about forever?

Should a forever Scratch code be included?

Scratch Key

Here is one possible way of coding the remaining Climate Change terminology into the Scratch program as digital cue cards!



```
when I receive message2
  forever
    switch backdrop to backdrop1
    ask Which concept would you like to learn about? and wait
    if answer = albedo then
      switch backdrop to albedo
    if answer = anthropogenic then
      switch backdrop to anthropogenic
    if answer = atmosphere then
      switch backdrop to atmosphere
    if answer = carbon cycle then
      switch backdrop to carbon cycle
    if answer = heat sinks then
      switch backdrop to heat sinks
    if answer = hydrosphere then
      switch backdrop to hydrosphere
    wait until key space pressed?
```

The image shows a Scratch script for a digital cue card program. It starts with a 'when I receive message2' block, followed by a 'forever' loop. Inside the loop, the first block is 'switch backdrop to backdrop1'. This is followed by an 'ask' block with the text 'Which concept would you like to learn about?' and 'and wait'. Below the 'ask' block are five 'if' blocks, each with a condition 'answer = [concept]' and a 'then' clause 'switch backdrop to [concept]'. The concepts are 'albedo', 'anthropogenic', 'atmosphere', 'carbon cycle', and 'heat sinks'. The final block in the loop is 'wait until key space pressed?'. The script ends with a return arrow.