CUB MEETING SCHEDULE : Week 1

Theme: What is Climate Change?

Date:

Time	*Activity*	*Program Details*	*Leader Responsible*
10 mins	Gathering Activity Climate Change Circle Game		
5 mins	Opening Ceremony		
20 mins	Theme Activity Mini Greenhouse Model Climate Change Crossword		
10 mins	Game Climate Change Tag		
15 mins	Theme Activity How Much Energy Does it Take to Make Popcorn?		
15 mins	Game Climate Change X's & O's		
5 mins.	Theme Activity The "Greenhouse" Effect		
10 mins.	Six Meeting		
5 mins	Spiritual Fellowship		
5 mins	Closing Ceremony		
15 mins	Leader Discussion Time		

Meeting Notes:

CUB MEETING SCHEDULE
CLIMATE CHANGE: WEEK 1
Theme: What is Climate Change?

Introduction: Climate change is a global concern with the potential to significantly affect the future of the next generation. In fact, it will affect not only their future but the present. There is strong evidence that human activities are impacting our climate now – resulting in warmer temperatures, a greater frequency and intensity of storms and droughts, and a higher incidence of forest fires. As you work through the activities, please see the various "Background Information" sections included for more information on the science of climate change.

GATHERING ACTIVITY

Climate Change Circle Game

Objective:

To introduce the Cubs to the concept of climate change while having fun.

Background Information:

Climate change refers to a change in the weather (temperature, wind and precipitation) typically experienced in a region. At a global level these changes impact the Earth's climatic balance. Evidence is gathering that human activities are changing climate, or perhaps accelerating naturally occurring climate change. The Earth has warmed significantly over the past 100 years and scientists are almost universally in agreement that this is in large part due to human activity.

The climate is changing because of a "greenhouse effect" taking place in the atmosphere. Certain gases exist naturally in the atmosphere. These gases act like the glass of a greenhouse keeping some of the sun's radiant heat in near the earth, making the earth's climate warm enough to sustain life. However, human activities, chiefly the combustion of fossil fuels for energy or heat, create "greenhouse" gases. When a high concentration of these gases build up in the atmosphere the climate of the earth changes.

Canada is an energy-dependent country and, as a result, a large emitter of greenhouse gases – the precursor to climate change. Each Canadian emits an average of 5 tons of greenhouse gases per year – that's 1/4 of the annual total produced by the entire country!

As global citizens we need to reduce our climate change "footprint". The solutions to combating climate change – such as saving energy, planting trees and using our cars less – not only save us money, they also combat other environmental problems such as smog and acid rain.

Equipment:

- The Climate Change Story
- Key word paper slips - Photocopy key words template and cut so each Cub has one word (see page 8 for template).

Instructions:

- The object of the game is for the Cubs to race around the circle back to their place before other Cubs get to their spots.
- Cubs sit in a circle on the ground.
- Read the climate change story to them once, asking them to listen for the key words such as climate, carbon, greenhouse, energy and trees.
- Hand out the paper slips with the key words on them so that all the Cubs have a word. Space out the words evenly around the circle.

- Read the story to the Cubs again. When a Cub hears their word then they have to get up and try to run around the circle back to their seat first. After each key word, wait for all the Cubs to get back to their places before resuming the story.
- Ask the Cubs questions about each of the words after the game to ensure they have understood the message.

Climate Change Story

The atmosphere is the layer of gases around the EARTH.

These gases help keep some of the sun's heat in, kind of like a window in a GREENHOUSE. We need them because otherwise the planet would be too cold to live on.

But if there are too many of these gases too much of the heat gets trapped in the atmosphere and that will cause CLIMATE change. Human actions are putting more and more of these GREENHOUSE gases into the atmosphere.

One of the most common of these gases is called CARBON dioxide. This is a molecule that occurs naturally; for example, we breathe it out with every breath and it is necessary for the survival of TREES. However, we also create this molecule when we burn fossil fuels like oil and gas to make ENERGY and drive our cars. And too much of it is not good for the EARTH.

However there are many ways to help reduce CLIMATE change. We can plant TREES. They help reduce global warming by absorbing CARBON dioxide. We can also help by turning off the lights, recycling our garbage, using our cars less, so that we need less ENERGY.

I hope this little lesson helped you understand the relationship of the EARTH, CLIMATE change, GREENHOUSE gases, CARBON DIOXIDE, ENERGY and TREES.

Adapted from *Keep it Cool; Activities for Units on the Greenhouse Effect*. Girl Guides Association of Victoria, Australia.

THEME ACTIVITY
Mini Greenhouse

Objective:

To show the Cubs a model of the earth's atmosphere and explain the greenhouse gas effect.

Background Information:

Certain gases in our atmosphere, (water vapour, carbon dioxide, methane, and nitrous oxide), act like glass in a greenhouse to keep the sun's heat in and help make our planet livable. Without this natural insulation, the Earth's surface would be much colder than it is now. In fact, the average temperature on Earth would be -18° Celsius, too cold to support the diversity of life that now exists.

However, since the Industrial Revolution, developed countries have produced increasing quantities of greenhouse gases. This has enhanced the natural greenhouse effect, causing the Earth to become warmer. Climate scientists around the world agree that average global temperatures could rise by 1.4 to 5.8 degrees Celsius by the end of this century. Increasing temperatures will lead to changes in many aspects of weather, such as wind patterns, the amount and type of precipitation, and the types and frequency of severe weather events that may be expected to occur. Such climate change could have far-reaching and/or unpredictable environmental, social and economic consequences.

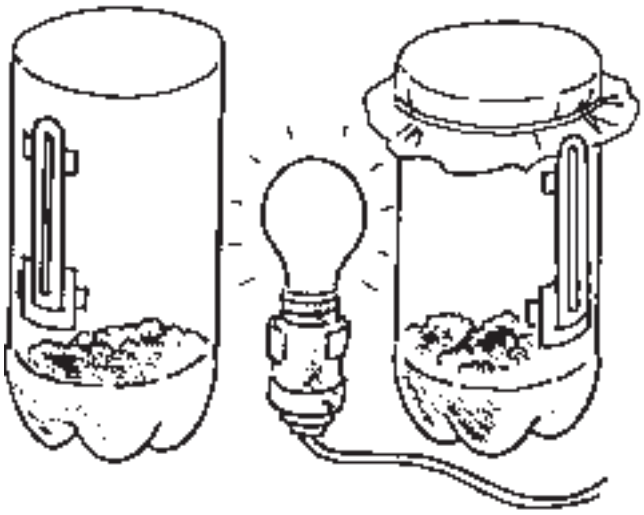
In this model the plastic cover represents the increased number of greenhouse gases in the atmosphere that trap in the heat.

Equipment:

- A pair of sturdy scissors
- Diagram.

Each six requires:

- Two empty, clean, clear, two litre plastic pop bottles
- Two cups of slightly damp soil (at room temperature)
- An 8 X 8 inch square of plastic wrap
- An elastic band
- A lamp without a shade
- Two Thermometers (for the variation)
- Duct Tape.



Instructions:

- Cut the top two inches off the pop bottles before the meeting.
- At the meeting explain to the Cubs how the earth (represented by the soil) has an atmosphere (represented by the air in the bottles) that envelops the globe. When there are too many greenhouse gases in the atmosphere they trap the heat that comes from the sun. As a result the atmosphere gets hotter which changes the climate. The plastic wrap will act like a greenhouse gas and trap in the heat.
- Each six puts a cup of soil in each bottle.
- Place plastic wrap over the top of only one of the bottles securing it with the elastic band.
- Place the bottles 3-5 cm away from the light source so that the bottom of the bottle is at the same level as the bottom of the light bulb.
- Turn on the light bulb and leave it on during the next activity and game.

Variation

- After the soil is put in the bottles, tape a thermometer to the inside of each bottle straight up with the base of the thermometer two cm above the soil. Do not cover the bulb of the thermometer with the tape. Make sure the thermometer is facing out so it can be seen from the outside of the bottle.
- Take a reading of the thermometers in both bottles and record them before turning on the light.

Adapted from "*Modelling the Greenhouse Effect*" *Climate Change Toolkit: Teacher's Guide.* Saskatchewan Science Centre.

Climate Change Crossword

Objective:

A fun way to play with climate change words.

Background Information:

This crossword has a couple of answers that have not specifically been mentioned yet but the Cubs should be able to pick them up.

Answers:

ACROSS 1. drought 2.oil 3.earth 4.climate 5.greenhouse

DOWN 1.dioxide 2.sun 3.heat

Equipment:

- Activity sheet (see page 9) photocopied
- Pencils.

Instructions:

- Cubs work on the crosswords while waiting for other sixes to finish their greenhouses.

GAME

Climate Change Tag

Objective:

To show the important role of trees in absorbing carbon dioxide so that this greenhouse gas doesn't build up in the atmosphere and cause climate change.

Background Information:

Carbon dioxide is one of the most prevalent greenhouse gases. It is also a gas that is necessary for photosynthesis. During this process, plants and trees absorb carbon dioxide and give off oxygen. Trees can absorb a significant amount of carbon dioxide during their lifetime and therefore are important to reducing climate change.

Equipment:

A large playing area (15 x 7 metres).

Instructions:

- The object of the game is for one team to get from one side of the play area to the other without being tagged by the other team.
- Divide the pack into two groups. One group is the trees, the other is the carbon dioxide molecules.
- Explain to the "carbon dioxide molecules" Cubs that they are pretending to float in the air like a gas molecule and that they are trying not to be "absorbed" by the trees. If they get tagged by a tree then they become oxygen, leave the playing area and return to the starting point.
- Explain to the "trees" that they are to pretend that they are absorbing the "carbon dioxide molecules" by tagging them. They must stand rooted to the ground with their feet together so they can't move. Spread out in the play area so that they cannot touch any other "tree" Cub when their arms are stretched out.
- The "molecules" Cubs line up on the start line (along the narrow end of the playing area) and begin to try to move through the trees to get to the other side. The "trees" try to tag the "molecules".
- Once all the "molecules" have made it through the trees or been tagged, stop the game and switch the teams. You will likely want to switch a couple of times or add more "trees" or more "carbon dioxide molecules" to simulate changes to the environment.
- Discuss how having more trees means there will be less greenhouse gases in the atmosphere.

THEME ACTIVITY
How Much Energy Does it Take to Make Popcorn?

Objective:

To get Cubs thinking about the fact that it takes energy to do and make everything on the earth.

Background Information:

The production of energy from non-renewable energy sources such as coal, oil and gas is one of the main sources of greenhouse gases in Canada. It is important to realize that energy is used to create new materials, processes or services and to try to minimize the amount of energy Canadians demand.

Equipment:

- Popcorn kernels
- A popcorn popper
- Butter or margarine
- Bowls for the popcorn
- A piece of flip chart paper for each six
- Markers.

Instructions:

Before starting this activity, check for allergies.

- Discuss with the Cubs how it takes energy to do everything (put up a tent, drive a car, etc.) and make everything (clothing, games, etc.) in the world. Ask them to think about all the types of energy needed to make the popcorn (sun to grow it, farm equipment to harvest it, trucks to bring it to stores, machinery to package it, cows' energy to make milk, machinery to make butter, electricity to make the popper work, human energy to put it together etc.).
- Form into sixes and put a large piece of paper in the middle of each six. Draw a few popped popcorn kernels in the middle. Ask the Cubs to draw all the energy ideas around the popcorn on the sheet with lines going to the popcorn.
- A leader can get the popcorn popper set up and once the activity has started, make the popcorn.
- Each six presents their ideas on their sheet while the rest of the Cubs are eating their popcorn.

Adapted from *Green Teacher*, On line articles, *Planet Earth Pages - Resource Conservation*.

GAME
Climate Change X's & O's

Objective:

To test the knowledge of the Cubs on climate change while playing a life-size game of X's and O's.

Background Information:

See sections above for more detailed descriptions of climate change.

Equipment:

- A diagram of X's & O's on a piece of paper (see page 10)
- 2 sets of 9 chairs
- 12 questions on climate change based on story before (see page 10).

Instructions:

- The object of the games is to get three team members sitting in a row (horizontally, vertically or diagonally).
- Explain to the Cubs that they are going to play a life-size game of X's and O's. Show them the diagram to give them a visual clue about the game. For every question they get right, they put one player on the "board". If they get the question wrong, the other team gets to guess. The game is over when one team has three players in a row.
- The Cubs need to decide on the answer amongst the team and then the team leader will give the answer. (Note: this game can get quite intense so the role of the leaders is quite important.)
- If the answer is right the team has to decide with their leader where to put a player. The leader decides which Cub will go on the board.
- Set up the chairs in two squares of 3 x 3 at opposite ends of the hall.
- Split the pack into four teams (by sixes or another method) and assign two teams to each of the squares of chairs.
- Assign a leader to each team.
- Assign other adults or leaders to read the questions — one for each game.
- Flip a coin to determine who goes first in each game.
- At the end, review the questions that were difficult for the Cubs to answer.

THEME ACTIVITY

The Greenhouse Effect

Objective:

To demonstrate the "greenhouse" effect.

Background Information:

See the Background Information of "Build a mini greenhouse".

Equipment:

- The "greenhouse" bottle experiments from the previous activity.

Instructions:

- Go back to the "greenhouse" bottles and observe the differences between the two bottles. If there is condensation on the plastic-covered bottle, this means that the inside of that bottle is warmer.
- Explain how light is turned into heat and how heat can get trapped by the plastic. Greenhouse gases do the same thing in our atmosphere. A hotter climate triggers climate change.

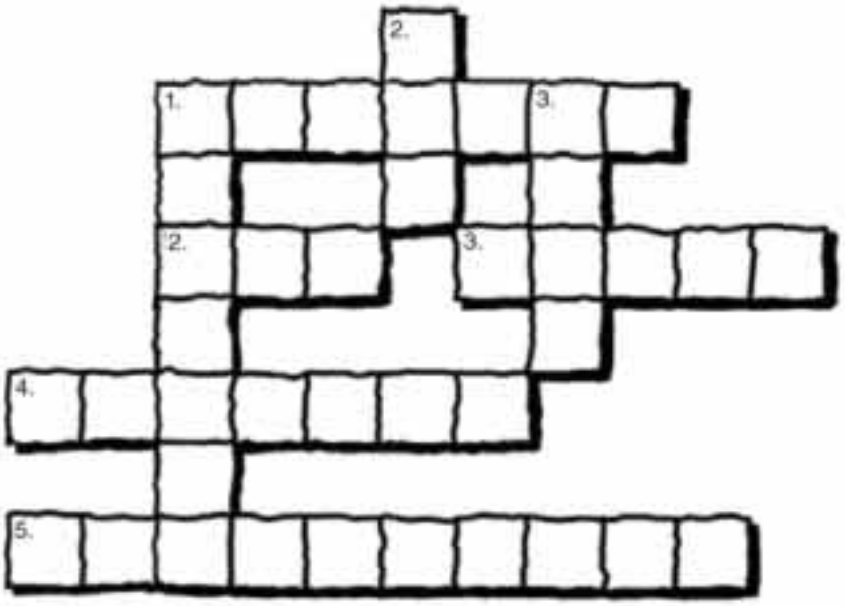
Variation

- Take a reading of the temperature in each of the bottles. Notice the difference from the readings before and between the two bottles.
- Explain how light is turned into heat and how heat can get trapped by the plastic. Greenhouse gases do the same thing in our atmosphere. How does this relate to climate change?

Climate Change Key Words Template

CARBON
CLIMATE
GREENHOUSE
EARTH
ENERGY
TREES

Climate Change Crossword



ACROSS

1. High temperatures with no rain could cause a _____ .

2. _____ is a fossil fuel that is used to make electricity.

3. The atmosphere traps the sun's heat near the _____ .

4 Temperature, rain, sunshine, wind, frost and hail are all part of our _____ .

5. The earth is kept warm by _____ gases.

DOWN

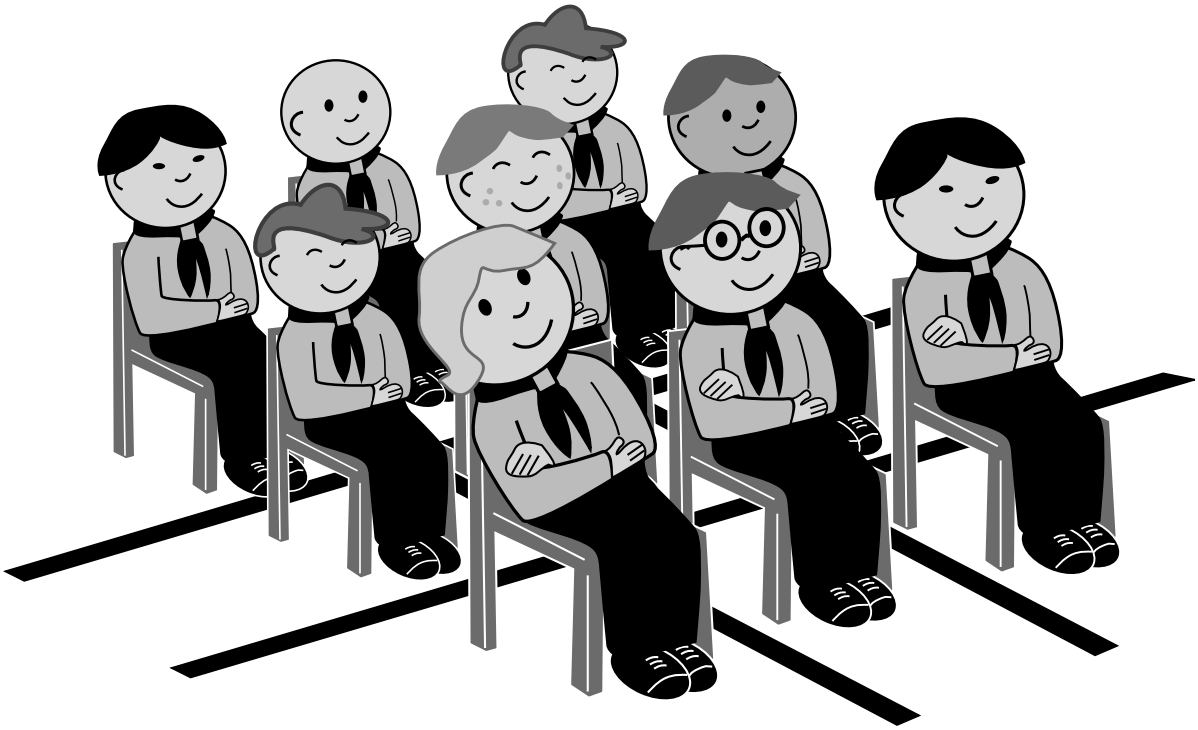
1. Trees absorb carbon _____, filter out pollution, provide shade and look beautiful.

2. Heat from the _____ warms the earth.

3. We use fossil fuels to _____ our homes, run our cars and make electricity.

Source: *Energy and Our Environment*. Thank-you to SaskPower.

Climate Change X's & O's Template



Questions

1. *What is the problem that the earth is facing because humans are using too much energy? (A: Climate Change)*
2. *What are the gases that cause global warming called? (A: Greenhouse Gases)*
3. *Why are they called Greenhouse gases? (A: Because they trap the sun's heat in like a greenhouse.)*
4. *What is a common type of greenhouse gas that we talked about before? (A: Carbon Dioxide)*
5. *How do trees help reduce climate change? (A: They absorb Carbon Dioxide.)*
6. *What is the type of fuel that is used to create energy that also causes Climate Change? (A: Fossil fuels (oil or gas).)*
7. *Is the planet getting colder or hotter because of the greenhouse gases in our atmosphere? (A: Hotter.)*
8. *True or False? Saving electricity can help climate change. (A: True)*
9. *What are three things that begin with the letter R that can help reduce climate change? (A: Reduce Reuse Recycle)*
11. *What thing do we often use to get from one place to another that contributes to climate change? (A: Cars (airplanes, motor bicycles))*
12. *What can we use to travel around that does not cause greenhouse gas emissions? (A: Bikes, roller blades, skateboards, our feet.)*
13. *Name two things at home that you can do to help climate change besides those already mentioned in these questions. (A: Turn off lights, TV, turn down temperature, dry clothing on a rack instead of a dryer – just about anything where they are using less electricity or energy.)*