

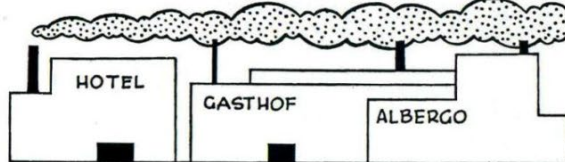
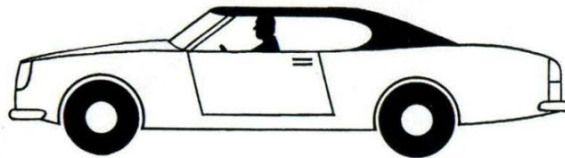
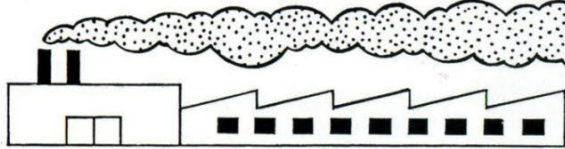
SPECIAL INTEREST AREA:*Environment*SUSTAINABLE DEVELOPMENT GOAL:*#11 Sustainable Cities and Communities*CHALLENGE AREAS:*Outdoors* (Environment & Time in Nature)

ACTIVITY		'Sticky Leaves'
PLAN	AIM	To learn about air pollution and investigate local air quality. Making air pollution 'visible' is will be easier for Scouts to understand.
	AGE RANGE	5 to 7 years
	SUMMARY	<ul style="list-style-type: none"> ○ Scouts are working towards a world where people and natural systems have clean air. ○ Understand the ways water and air is naturally cleaned. ○ A fun, outdoor activity that investigates air and makes air pollution visible.
	HOW MUCH TIME	20 minutes
	SETTING	<ul style="list-style-type: none"> ○ An outdoor setting with trees and shrubs. ○ The activity can be done at more than one location. If this is the case, choose areas that differ in their proximity to roads, factories, or other sources of air pollution. ○ The areas will need trees or bushes in leaf but the leaves should not be near the ground. One important point to note is that smooth surfaced leaves give better results than hairy leaves ○ Scouts can work in pairs
	EQUIPMENT	Clear sticky tape, white paper and scissors; * access to a magnifying glass or microscope (if possible)
	PREPERATION	Assemble the equipment list Find a suitable place to run the activity.
	BACKGROUND	<ul style="list-style-type: none"> ○ Nowadays half of humanity – 3.5 billion people - is living in cities. ○ An air pollutant is any unwanted substance or chemical that contaminates the air that we breathe resulting in a decline in air quality. Air pollutants have sources that are both natural and human. ○ Natural sources include volcanoes, wildfires, airborne dust, and cattle digesting grass. ○ Although some pollution comes from natural sources, most pollution is the result of human activity. The biggest causes are the operation of fossil fuel-burning power plants and automobiles that combust fuel. ○ Most of the main air pollutants can be harmful to human health. ○ There are three ways in which animals can be affected by air pollution. They can breathe in gases or small particles, eat particles in food or water or absorb gases through the skin. ○ Soft-bodied invertebrates, such as earthworms, or animals with thin, moist skin <i>such as frogs</i>, are particularly affected by absorbing pollution. ○ Sources of air pollution and dust often leave residues on the top of exposed leaves. ○ The sticky leaves activity collects these residues. The air pollution in different areas can be compared and related to the source of the pollution.

DO	STEP BY STEP GUIDE TO ACTIVITY	<ul style="list-style-type: none"> ○ Give the Scouts five minutes to explore their surroundings. They can explore in small groups or individually. ○ Gather the group together and discuss their discoveries. They should have noticed living things such as trees, plants and animals as well as inanimate objects like soil, rocks and water. Ask the Scouts how are these things all connected? Where do the animals live? What do the trees and plants need to survive? They should discover that the environment is all linked together. Ask them if there is anything else that is vital to this environment that we can't see. The answer is air. ○ Sit the Scouts down and ask them to spend one or two minutes breathing in the air and thinking about it. They should take really deep breaths and try to fill their lungs. At the end of the allotted time ask them to describe the air around them. Does it taste of anything? Does it smell of anything? Can they see it? What is in air? (see page 3) ○ Introduce the sticky leaves activity. Our air contains oxygen and nitrogen, and approximately only 7% carbon dioxide and some other gases, including pollutants. The majority of the gases and particles that make up our air, including the oxygen, nitrogen and carbon dioxide, are colourless, odourless and tasteless. ○ However, some of the pollutants are in particles big enough to be visible to the naked eye. The sticky leaves activity enables these particles to be collected. ○ Ask the Scouts where they think air pollutants might come from (some sources are cars, fossil fuel-burning power plants, volcanoes, fires, dust). Ask the Scouts about their current location. What sources of air pollution are nearby? ○ Split the Scouts into small groups and give each group some white paper, scissors and some sticky tape. Depending on the size or other characteristics of your natural area and the size of your group, you can allocate each group their own area or vegetation type or you can allow them to decide themselves where they sample. ○ The Scouts cut a piece of sticky tape and press it firmly, sticky side down, onto a leaf. They then carefully remove the tape and stick it onto a piece of white paper. Each group should do this at least five times in order to get a representative sample and write down or draw the location where they took the sample.
REVIEW	EVALUATION	<p>Gather the Scouts together and compare the results. If you have access to a magnifying glass or microscope, look closely at the samples.</p> <ul style="list-style-type: none"> ○ Where were the dirtiest samples taken from? ○ Where were the cleanest samples taken from? ○ Is there a pattern, if so why? Where is the pollution coming from? ○ Where is the pollution coming from? ○ Think about the damage the pollution in the air might be doing. How might it affect the plants? ○ How might it affect human health? ○ How might it affect animals? <p>****Remember, that this is only the pollution that is visible. A lot of pollution is not visible to the naked eye.</p>

Enlarge and Display this Chart

Main Causes of Air Pollution



- Factories fill the air with a great variety of dangerous substances. There are many other ways of disposing of these substances, but the cost is high.
- Motor cars and other road vehicles are major air polluters. They fill the air with about 75 million tons of pollutants every year. This increases every year!
- A jet airplane gives off as much soot and other particles as 24 thousand cars!
- Oil is widely used in houses, hotels, factories, etc., for heating, cooking, power. The sulphur dioxide poured into the air from oil furnaces contaminates both water and soil, and also causes metal corrosion in vehicles, machines, metal structures, etc.
- Coal fires play their part. It was the particles from all the coal fires heating the houses in London, England, that caused the air pollution catastrophe in December 1952 - when 4 thousand people died in one week.
- Grass and forest fires all play their part in polluting the air. Likewise, when you burn garden and other household waste, you add to the problem.

Project 31

MAIN CAUSES OF POLLUTED AIR

ANOTHER ICE AGE? Man's activities on earth continue to fill the air with an increasing quantity of particles. The radiation from the sun is very delicate. If this radiation is diminished by just 1%, we will have another Ice Age!

FOR PUBLIC SHOW-AND-DO PURPOSES, make an enlarged copy of this chart on poster paper, or card. Also, pin up the enlargement in your unit's "Conservation Corner." Use it, too, for Conservation training talks.

