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Earth and environmental sciences

Project ideas

Interior air and allergies
 Improving commuting between home and work on the island of Montreal
 Life after rain
 The butterfly bush and monarch butterflies—a matter of co-evolution?
 Beluga autopsy
 “Prehistoric” bacteria in ice
 Biodiversity in an urban environment
 Mapping Quebec’s non-renewable resources and suggesting a method of evaluating the health of the environment
 Mapping areas that are hydrological risks and suggesting a new way of fortifying banks
 Mapping or classifying types of plants in accordance with their use in a given region.
 Climate change and water balance
 Calculating the speed of continental drift
 Determining the location and force of earthquakes.
 Eliminating chemical pollutants in water
 How does GPS work?
 How do animals sense upcoming earthquakes?
 Measuring climate change over the millennia
 Measuring air quality inside buildings
 How can we improve some plants’ resistance to cold?
 Is it really possible to predict the weather?
 How can analysis and monitoring of water be more reliable?
 How is soil created and maintained?
 Learning about populations of fish and shellfish in order to determine fishing efforts
 Solving the problem of groundwater contamination from landfill sites
 Is it possible to create new fruit species?
 Creating an ecological antifreeze
 Creating an ecological fuel
 Drawing up a plan for an ecological farm
 Creating a new variety of apple
 Strategies for cultivating and using native territories
 Where does the earth beneath our feet come from?
 How is crop rotating beneficial for plants?
 Demonstrating the effects of waves on the size of a plume (a pool resulting from the mixing of fresh water and salt water)
 Are hydroponic crops more promising for the future?
 Fossils in Quebec?
 Macroinvertebrates that determine water quality in rivers
 Rocks that emit colours when exposed to UV rays

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Determining the percentage of breast milk contamination by organochlorines and their impact on the population

Developing a simple means of growing fruits or vegetables in limited space

Developing a new model for forest exploration

Should forest species be grown intensively (intensive silviculture)?

The daily dynamics of the microscopic life of a lake

The ecosystem of hot springs: myth or reality?

Establishing emergency procedures in the event of an accident involving chemical contaminants

Eliminating ice on roads using ecological means

Envisat: the European satellite dedicated to the environment

Can the Moon affect the frequency or amplitude of earthquakes?

Evaluating the degree of exposure to contaminants in different area of a city or in different cities

The historical evolution of land occupation in a given region

Are there bioindicators to evaluate air quality?

Are there biological processes that can help break down waste in landfill sites more quickly?

Organic or chemical fertilizer, or both?

How far can we go to explore mines?

The biological activity of soils

Community sustained agriculture: a relationship between economy, ecology and social development

Is bottled water really better?

Water and hydroelectric turbines

Is drinking water an non-renewable resource?

The effect of the concentration of sand on the drainage of water-laden clay

The effect of the concentration of water on clay

The greenhouse effect

The effectiveness of reforestation after cutting

Is there an endless supply of energy?

The study of the evolution of primitive magma

The study of magnetic declination over time

The study of clay

The study of groundwater.

Studying the short- medium- and long-term effects of the ice storm

Eutrophication—the future of our lakes depends on it

Identifying minerals through geochemical analysis

Identifying high-risk zones (e.g. landslides) through photointerpretation

The effect of acid shock after the snow melts

The importance of watersheds

The effects of fishways on water oxygenation

The effect of the Gulf Stream on Europe's climate

Is the Earth's interior solid or liquid?

Stratigraphic interpretation of geological maps

Soil irrigation

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The uses of GMOs in agronomy and the controversy that they raise
 The use of old photographs for studying changes in landscape
 Communication among plants
 Creating geological maps using information about a given terrain
 Environmental contamination by “exotic” and invasive plants
 Decontamination using plant life
 The forest behind the trees
 The formation of meanders
 The geochemistry of drinking water: hard water, soft water
 Modelling rock deformation with plasticine by modifying constraints
 The water table and deforestation
 Pollution from fish farming
 The relationship between minerals and plant biomass
 Sedimentology—a time travel machine
 Sequestering CO₂—an antidote to the greenhouse effect
 Aquatic life and black flies
 Handy larvae—casebearing Trichoptera
 Calculating groundwater lowering from pumping
 Helping farmers decide whether or not to choose genetically modified rapeseed
 The debate between native plants and horticultural plants
 Soil drainage
 Is the black granite of the Lac-Saint-Jean region real granite?
 The fossiliferous paradise of Miguasha
 Do thermal inversions increase pollution?
 Quebec’s mineral potential
 Will Quebec become a diamond capital?
 Can Quebec sell its water to other provinces or countries?
 Will global warming lead to catastrophe?
 The role of ocean plankton in regulating greenhouse gases
 The secret of landscape architecture
 Maple syrup: an exclusive Quebec resource
 Does smog affect health?
 Following schools of fish by satellite
 Why are amphibian populations decreasing?
 Are the Appalachians older or younger than the Rockies?
 Mushrooms and their CO₂
 Transportation choices and air quality
 Do all crystals have the same shape?
 Do popular beliefs (e.g. the groundhog seeing its shadow, the height of wasp nests) have any scientific basis?
 The beneficial effects of green spaces on environmental quality indicators in urban settings
 The impact of the drying out of wetlands
 Stagnant pools in the desert and the appearance of short-lived ecosystems
 Synthesis materials and interior air quality

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Are migratory birds affected by air transportation?
 Are pesticides harmful or helpful?
 Pingos: Arctic geological formations
 Exotic and invasive plants (e.g. wild parsley, loosestrife)
 Companion plants and ecology in the garden
 Plants and air quality inside buildings
 Is acid rain a thing of the past?
 The organic microbial processes of composting
 Is organic produce really better?
 Is ecological produce really ecological?
 Do gas stations pollute the environment?
 Plant succession
 Earthquakes
 Developing a cactus nursery
 Quebec forests: a renewable or non-renewable resource?
 Possible disruptions to the various "links" of the water cycle (air, groundwater or runoff pollution)
 Can the world be described through sound (geography of sound)?
 Is it possible to identify and recreate glacial drift?
 Is it possible to predict the frequency of major meteorological catastrophes (e.g. hurricanes, tidal waves, tornados)?
 Is it possible to predict the development of a waterway?
 Can cities be protected from volcanic eruptions?
 Lead, mercury, soap, etc.: Are fish fit for human consumption?
 Why are certain species found only in a given area (e.g. in Quebec: the copper redhorse)?
 The importance of naturalizing available spaces in cities
 Why are volcanoes not all of the same type?
 Why are all the Earth's volcanoes aligned?
 Why use hybridization techniques with crops?
 Is it really possible to predict the weather?
 What does "certified organic" really mean?
 How old are the Appalachians?
 What is the future of the St. Lawrence River?
 What is the equilibrium responsible for life on an island?
 What is the secret behind coloured diamonds?
 How do municipal planning policies affect urban ecosystems?
 What is the distribution and sedimentation speed of contaminants?
 What is the best bottled water?
 What forest areas should be protected?
 What are the criteria for obtaining "large crystals"?
 What are the impacts of intensive farming following deforestation in developing countries?
 What is quality air and how can it be measured?
 Who suffers the most from acid rain?

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- Ideal distribution of ambulance centres in a large city
- Should forests be fertilized with pork manure?
- Soils and crops: the properties of clay, sandy and organic soils
- Sources of greenhouse gases and means of reducing them
- Strategies for protecting coral reefs
- Following the voyage of a glacier and its transformation
- Tobacco and air quality
- Tomatoes and basil—companion planting in the garden
- Finding effective means of fighting farm pollution
- A filter to make water safe for drinking
- Effective mud treatment used in treatment plants
- A systemic approach through the study of watersheds
- Uses of pork manure
- Do some populations suffer from pollution more than others?