



# Radon

## Reduce your Exposure



Radon is a naturally occurring radioactive gas that comes from the breakdown of uranium in soil and rock. It has no colour, no odour, and no taste. As radon gas is released from rocks and soil, it can easily enter homes and other buildings and build up to high levels, which can become a health risk. Exposure to high levels of radon indoors can increase the risk of developing lung cancer.

Health Canada recommends that all homes and buildings be tested for radon and that the level be reduced if they exceed the Canadian guideline. Techniques to lower radon levels are effective and can save lives.

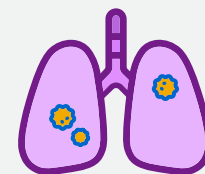
### Radon: The facts



Radon is a naturally occurring radioactive gas.



All homes and buildings have some level of radon and any building can have high radon levels, regardless of geographic location.



Long term exposure to radon is the number one cause of lung cancer in non-smokers.



Testing for radon is easy and if levels are high, they can be fixed.



Health Canada recommends that all homes and schools test and reduce, if their level is high.

### Want more information on radon and your health?

- About Radon (Health Canada) - [English](#) / [French](#)
- Radon Schools Communications Toolkit (Take Action on Radon) - [English](#) / [French](#)
- Radon - What you need to know (Health Canada) - [English](#) / [French](#)
- Guide for Radon Measurements in Public Buildings (Health Canada) - [English](#) / [French](#)
- Radon Long Term Test Instructions (Health Canada) - [English](#) / [French](#)
- Radon Test Kits (Take Action on Radon) - [English](#) / [French](#)
- Canada Radon Map (Health Canada) - [English](#) / [French](#)
- Radon Gas in your Home (Health Canada) - [English](#) / [French](#)

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## Learning about radon

Have students learn about radon, its origin, how it enters the indoor environment, how someone can be exposed to radon, and the subsequent health effects of exposure. Students can then conduct their own research, raise awareness, and test for radon in their homes or school.

### Subject Areas:

- Science
- Health & Physical Education

## Before you begin:

Learning about radon and its health effects may cause worry for those studying the topic. It is important to understand that radon is a naturally occurring form of radiation that is found in all buildings. Likewise, learning about radon and conducting simple radon testing is the only way to know how much radon is present in your building. If a home or school tests above the guideline, radon levels can be reduced with the help of certified radon mitigation professionals.

## Part 1: What is radon?

Share information with students about radon, its origin, how it enters the indoor environment, how someone can be exposed to radon and the subsequent health effects. Here are some facts to get you started:

**What is radon?** Radon is a naturally occurring, radioactive gas that you can't see, smell, or taste.

**Where does radon gas come from?** Radon comes from the mineral uranium that occurs naturally in the soil. As the uranium breaks down it releases radon gas.

**How does radon get into buildings?** As radon gas is released from soil and rock it can easily travel from the ground into buildings. The main entry point for radon gas is through the lowest floor or basement of a building, close to the source of radon (soil and rocks). Here in Canada, when our homes and schools are well sealed to keep us warm in the winter, radon concentration can build up.

**Why does radon pose a risk to our health?** Radon is a radioactive gas. Radiation can damage the cells in our bodies, causing them to change and reproduce in irregular ways. Breathing radon gas for many years may cause lung cancer. In fact, it is the number one cause of lung cancer in non-smokers.

### What does radioactive mean?



The definition of radioactive is: emitting harmful rays due to the disintegration of atoms.



Other ways to describe radioactive, in more simple terms, include: harmful to one's health or cancer-causing.

### Did you know?

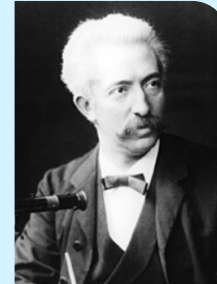


The invisible energy that radioactive elements emit can be converted into visible light used in various technologies such as x-rays. Radon produces a type of ionizing radiation that can change an atom.

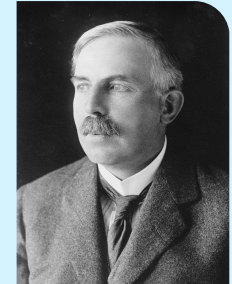


## Who discovered radon?

Scientists Marie and Pierre Curie were the first to observe radon in the late 1800s. Credit for the actual discovery of radon is disputed and goes to both British physicist **Ernest Rutherford** or German chemist **Friedrich Ernst Dorn**.



Friedrich Ernst Dorn



Ernest Rutherford

## Part 2: Start testing!

- If your school has not been tested for radon, encourage radon testing by following [Health Canada's Guide for Radon Measurements in Public Buildings](#).
- Have students set up a radon test in the classroom to learn about how easy it is to test.

### Steps to conducting a radon test in school:

- 1 Get approval:** Speak with your administrator and check with your school board/district before getting started. Follow the proper approval process and ensure that you are following board/district policies.
- 2 Plan for testing and a mitigation strategy:** Conducting a radon test is the only way to know how much radon is present in your school. If your school tests above the Health Canada guideline (above 200 becquerels per cubic metre), radon levels can be reduced with the help of a certified radon mitigation professional. Have a plan in place for next steps, before you test.
- 3 Order a kit:** To conduct a radon test, you will need to order an approved radon testing kit. To find a radon test kit provider near you, check out this [link](#).
- 4 Review:** Go over background information about radon by reviewing Part 1: What is radon? (see page 2)
- 5 Ease concerns:** Remind students that radon is a naturally occurring form of radiation that is found in all buildings. Let students know that you have a plan in place should higher levels of radon be found during your test, to ease student worries.

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- 6 Describe the radon test:** Show the radon kit to students to foster discussion about the test. Describe the process for testing radon at school:
- i) A long term radon test should be placed in the classroom or lowest occupied level of the school building.
  - ii) Long term (3 months+) testing is recommended because it is representative of a persons annual average exposure.
  - iii) The kit is then mailed into a lab that measures the radon and results are returned within a few weeks.
  - iv) If the results show that the school contains high amounts of radon, above Health Canada guideline, the school will consult with certified professionals to develop a mitigation plan (e.g. installing a radon mitigation system, sealing cracks in the foundation, increasing ventilation).
- 7 Conduct the test:** Conduct the test following the instructions provided with the kit and take next steps as needed.

### For more information on conducting a radon test at school:

- [Health Canada's Radon Long Term Test Instructions](#)
- [Radon in schools: A summary of testing efforts across Canada report](#)
- [Guide for Radon Measurements in Public Buildings \(Health Canada\)](#)

## Part 3: Extend the learning and raise awareness!

- 1 Share your learning!** Share information on radon with your whole schools community including students, staff, parents/guardians, and the broader community through social media, newsletters, presentations, handouts, and displays.
- TIP!** Consider launching a whole school radon awareness and action campaign during the month of November, which is [Radon Action Month](#).
- 2 Bring information home!** Students can bring information on radon and radon testing home.
- TIP!** To get started, check out: [Radon Schools Communications Toolkit](#). You can also order Health Canada radon information brochures by emailing: [radon@hc-sc.gc.ca](mailto:radon@hc-sc.gc.ca).