

Nuclear Technology Research Paper: Suggested Topics

- **Commercial Applications of Nuclear Technology**
(e.g. radioluminescence, tritium illumination, betavoltaics, smoke detectors cosmetics, watches, photocopiers, etc.)
- **Industrial Applications of Nuclear Technology**
(e.g. gauges, electrostatic controls, radioactive tracers, oil and gas exploration, road construction non-destructive testing, vulcanization of tires)
- **Isotope Hydrology**
(enables accurate tracing and measurement of underground water, gives valuable information about surface waters; used in 60+ countries from Afghanistan to Zaire to investigate and manage water resources)
- **Medical Applications of Nuclear Technology**
(Imaging (diagnostic) and Radiation Therapy (treatment))
- **Nuclear Weapons**
- **Nuclear Technologies in Food Processing**
(Sterilization of tools, and Food Irradiation)
- **Nuclear Technology in Agriculture**
(e.g. Mutation induction to increase genetic variability, and insect control)
- **Nuclear Power for Transportation**
(e.g. aircraft carriers, icebreakers, submarines, cars)
- **Nuclear Power Plants**
- **Nuclear Technology in Space Missions**
- **Fusion as an Energy Source**
(e.g. NIF see: <http://www.youtube.com/watch?v=yixhyPN0r3g>
e.g. ITER see: <http://www.youtube.com/watch?v=-6hJ8sltdl>)

PHYSICAL SCIENCE

NUCLEAR TECHNOLOGY: A MATTER OF ENERGY

PSC-4010-2

PART I OF THE EXAMINATION


THE RESEARCH PAPER

STUDENT'S BOOKLET

Direction de l'éducation des adultes et de l'action communautaire
30-0102-671A

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Éducation,
Loisir et Sport

Québec 

1. Choosing a Topic

You must do research on one of the uses of nuclear energy and write a paper in which you state your opinion on a topic related to that use of nuclear energy.

You may choose your topic from those suggested in the list below or select another topic that interests you.

Suggested Topics

- The building of new nuclear power stations
- The decommissioning of old nuclear power stations
- Methods of burying radioactive waste
- Risks associated with disposal of the former Soviet Union's old nuclear submarines
- Food irradiation
- Medical applications of radioactivity
- Canada's investment in nuclear fusion research
- Controlling the number of countries with nuclear weapons

Once you have chosen your topic, discuss with your teacher the topic and the articles chosen, the availability of reference materials and the work plan.

BE SURE TO CHOOSE ONLY ONE TOPIC FOR YOUR PAPER.

2. Reference Materials

In doing your research for this paper, you must find at least five articles that deal with your topic. At least two of these articles must come from a source other than the learning guide. The reference materials will be evaluated on the basis of the variety and relevance of articles chosen for your research topic.

3. Writing the Paper

You must write a paper of 400 words or more in which you present your topic, explain the scientific principles involved and explain your position regarding this use of nuclear energy. Make sure that your reasoning is based on fact.

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PART I OF THE EXAMINATION

THE RESEARCH PAPER

EVALUATION CHART FOR
THE RESEARCH PAPER

NAME: _____

CENTRE: _____

SCHOOL BOARD: _____

DATE: _____ MARK: _____ /25

Name of Student: _____

EVALUATION CHART FOR THE RESEARCH PAPER

	Marking Scheme	Mark	Total
Introduction			
– presentation of the topic	0 or 1 mark	/1	/2
– explanation of interest in topic	0 or 1 mark	/1	
Part one of the body of the text			
– scientific principles involved			/5
• clear and complete explanations	0 to 3 marks	/3	
• explanations related to the content of the course	0 or 2 marks	/2	
Part two of the body of the text			
– advantages and disadvantages			/6
• two advantages	0 to 2 marks	/2	
• two disadvantages	0 to 2 marks	/2	
• additional arguments	0 to 2 marks	/2	
Conclusion			
– clear statement of position	0 or 1 mark	/1	/7
– explanation of position based on the advantages outlined	0 to 3 marks	/3	
– explanation of position that takes into account the stated disadvantages	0 to 3 marks	/3	
Quality of the reference materials			
– bibliography	0 or 1 mark	/1	/5
– articles taken from various sources	0 to 2 marks	/2	
– articles touching on various aspects of the topic or different points of view	0 to 2 marks	/2	
TOTAL	25 marks		/25