

4F – RESEARCH PRESENTATION ENHANCEMENT: INSULATORS IN THE HOME



OVERVIEW



Depending on where you live and what products are in your home, indoor air pollution can be more hazardous to your health than outdoor air pollution. When inhaled, some chemical compounds cause a range of health issues from minor allergies to a deadly illness such as lung cancer. Believe it or not, many of the materials in your home used to insulate living areas from temperature changes can be responsible for poor indoor air quality. Research the health effects associated with any material used for any sort of insulation in any part of a home. Present your findings in a paper and presentation from the perspective of a home safety expert. Share your presentation with your class.



RESEARCH



Research Criteria

Identify household insulation material found anywhere in a home. This could be a material used in the past, or a material used in today's homes. Research the material and determine:

- Why it is used for insulation
- Its performance as an insulator compared to other materials
- Its major chemical composition
- Hazards presented by this material related to chemical composition
- Description of the symptoms one would feel if experiencing health problems related to the material
- Other controversies associated with this material
- Alternatives to this material that insulate to the same or better level with less health risk

Find sources: Use a minimum of 4 sources. Two must be scientific or technical such as journal article or textbook sources that can provide data on the material of choice. Two must be from a reliable media organization or the chemical or materials industry that also provide data on the material.

Write: Create an outline to help you develop a 5- to 7-page paper (not including title page and reference list) and 10-slide presentation. Review the grading rubric for the final paper as you create your outline.

Add Context and Support: Imagine yourself as a home safety expert. You are writing this paper and presentation for an audience of homeowners. Think about the concerns a homeowner might have. Homeowners are mainly interested in the benefits and detriments of choosing a particular material, but as a safety expert, you must educate the audience about the chemical nature of the material and its health effects. As you address the items listed in the Research Criteria, use your sources to support statements.

- Evaluate the hypotheses, data, analysis and conclusions made by your four sources.
- Does research suggest a link between the material and the health issue? What evidence supports your conclusion? Do multiple sources present the same information or is there a lack of agreement?
- After thoroughly researching the insulating material, organize ideas, concepts, and elements in a way that is meaningful for your audience. You must present data and evidence from your research and use complex scientific language in a way your audience can understand. Do you recommend the homeowners choose this material for their home? Why or why not?
- Review the criteria for the paper in the Grading Rubric as you work.



GET STARTED



Do a little research and choose an insulating material that seems interesting to you and also has a lot of information available for your research. Find four sources that meet the criteria mentioned in Sources on the previous page. Research the elements mentioned in the Research Criteria section and review the Add Context and Support section. Create a 1-page outline to organize your findings into a logical sequence of topics. Attach your list of references to your outline. Turn in the outline and reference list to your teacher for approval. Make revisions suggested by your teacher.



ROUGH DRAFT



Write a rough draft. Remember, you're writing for a homeowner. Vary your sentences and use transitions so the paper is easy to read even though it will contain complex information. Follow your outline and re-read the criteria mentioned earlier; review the grading rubric. Turn in the rough draft and make revisions suggested by your teacher.



FEEDBACK



After making teacher-suggested revisions, exchange your paper with a peer and review each other's work. Use the grading rubric to evaluate one another's paper.



FINALIZE



Integrate peer feedback to improve your paper and complete a final draft. Your paper must be between 5-7 pages in length, not including a title page or reference page. Create a 10-slide presentation. Include at least one relevant picture and a few bullet points (not sentences) on each slide. Highlight the major findings of your research in the presentation. The final slide must provide a concluding statement on whether you recommend the insulating material or not. Check the criteria outlined in the assignment and in the grading rubric.



GRADING RUBRIC



There are two grading rubrics to review: one for the content in the **Research Criteria** list, and one for paper and presentation structure. Both are available on the next two pages.



GRADING RUBRIC FOR PAPER CONTENT



<i>Criterion</i>	<i>Criterion not met (0)</i>	<i>Needs Improvement (1 pt)</i>	<i>Satisfactory (2 pts)</i>	<i>Excellent (3 pts)</i>
<i>Why is the material used for insulation</i>	Criterion not addressed.	This criterion was poorly addressed.	Criterion addressed but needs more discussion or explanation.	Criterion thoroughly addressed.
<i>Compare insulator performance with others</i>	Criterion not addressed.	This criterion was poorly addressed.	Criterion addressed but needs more discussion or explanation.	Criterion thoroughly addressed.
<i>Chemical composition of insulator</i>	Criterion not addressed.	This criterion was poorly addressed.	Criterion addressed but needs more discussion or explanation.	Criterion thoroughly addressed.
<i>Health hazards related to chemical composition</i>	Criterion not addressed.	Evidence to link health issues with chemical in insulator is weak or missing commentary on level of agreement among sources.	Either evidence to link health issues with the chemical makeup of the insulator or commentary on level of agreement among sources is provided but needs more discussion.	Evidence to link health issues with the chemical makeup of the insulator and commentary on level of agreement among sources are well-described.
<i>Effects on the body at the cell level</i>	Criterion not addressed.	This criterion was poorly addressed.	Criterion addressed but needs more discussion or explanation.	Criterion thoroughly addressed.
<i>Controversy</i>	Criterion not addressed.	This criterion was poorly addressed.	Criterion addressed but needs more discussion or explanation.	Criterion thoroughly addressed.
<i>Alternatives to this material</i>	Criterion not addressed.	This criterion was poorly addressed.	Criterion addressed but needs more discussion or explanation.	Criterion thoroughly addressed.

Continue to the next page to see the **Paper and Presentation Structure** grading rubric.

GRADING RUBRIC FOR PAPER AND PRESENTATION

Criterion	Criterion not met (0)	Needs Improvement (1 pt)	Satisfactory (2 pts)	Excellent (3 pts)
Sources used and cited	Sources not cited, or the 4 sources did not consist of 2 technical sources and 2 from media/industry.	Not enough sources were cited or used, or the 4 sources did not consist of 2 technical sources and 2 from media/industry.	The 4 sources consisted of 2 technical sources and 2 from media/industry but they were not correctly cited.	Four or more sources used and properly cited. The 4 sources consisted of 2 technical sources and 2 from media/industry.
Quality use of sources	Little or no evaluation of hypotheses, data, analysis and conclusions. Or, heavy plagiarism. Or, information from sources did not support the research criteria.	Four sources used but information from them poorly support the research criteria. Or, minimal evaluation of hypotheses, data, analysis and conclusions from sources.	The 4 sources mostly supported research criteria. Included evaluation of hypotheses, data, analysis and conclusions from sources.	Sources supported the research criteria well. Included evaluation of hypotheses, data, analysis and conclusions from sources.
Paper length	Paper is less than 3 pages.	Paper is 3-4 pages long.	Paper is longer than 7 pages.	Paper is 5-7 pages long.
Paper readability	Not appropriate for the audience or is heavily plagiarized. Contains excessive grammar, spelling and punctuation errors.	Not written appropriately for the audience, or contains many grammar, spelling and punctuation errors. Not organized well.	The paper is written appropriately for the audience but contains minor grammar, spelling, or punctuation errors.	Paper is written appropriately for the audience and is mostly free of grammar, spelling or punctuation errors.
Presentation length	Less than 5 slides or heavily plagiarized.	Presentation is 5-9 slides.	Presentation is longer than 10 slides.	Contains 10 slides.
Presentation content	Pictures missing or inappropriate, or there is too much information on each slide. Major findings or recommendation are missing. Not appropriate for the audience.	Not appropriate for the audience. Includes inappropriate types or amount of pictures. Not enough or too much information on each slide. Major findings or recommendation are missing.	Mostly audience-appropriate. Use of pictures mostly balanced with text. Text summarized in mostly brief bullet points, not sentences and most pictures are appropriate. Includes major findings and recommendation.	Well-written for the audience with balanced use of appropriate pictures and text in 10 slides. Text is summarized in discreet bullet points instead of sentences. Includes major findings and recommendation.