

Name: _____

Thermal Energy and Insulated Clothing-Answer Key

Step 1: Read information about thermal energy

1. Heat transfer is when thermal energy transfers from one object to another. This means the one object is giving off heat and cooling down while the other object is absorbing heat and getting hotter.
2. 4 layer piece of clothing because it has more barriers to stop the heat transfer.
3. Answers will vary. Examples include: warm winter coats so a person's body heat doesn't flow away from them to the surroundings and wetsuits for scuba divers so their body heat doesn't flow away from them into the water.
4. Answers will vary. Example: it is important to test a prototype to make sure that it works correctly and is safe to use before it is mass-produced.

Step 2: Choose a group

Students can choose any group.

Step 4: Design a new type of clothing

See rubric attached.

Step 5: Design a tag

See rubric attached.

Step 6: Explain choices

See line in clothing rubric.

Name: _____

Thermal Energy and Insulated Clothing-Rubrics

Clothing Rubric

	3	2	1	0
Clothing Layers	Clothing design includes 3 different materials.	Clothing design includes 2 different materials.	Clothing design includes 1 different material.	Clothing design does not include reference to materials.
Material Choices	Student completely explains why material choices are appropriate for the chosen group.	Student mostly explains why material choices are appropriate for the chosen group.	Student somewhat explains why material choices are appropriate for the chosen group.	Student does not explain why material choices are appropriate for the chosen group.
Clothing Feature	n/a	n/a	Clothing design has a cool feature included.	Clothing design does not have a cool feature included.

Tag Rubric

	3	2	1	0
Heat Transfer Diagram	Tag includes a diagram that accurately shows how insulation reduces heat transfer.	Tag includes a design that shows how insulation reduces heat transfer with one mistake.	Tag includes a design that shows how insulation reduces heat transfer with two mistakes.	Tag includes a design that shows how insulation reduces heat transfer with more than two mistakes.
List of Material Choices	Tag includes a list of 3 materials chosen for use in clothing.	Tag includes a list of 2 materials chosen for use in clothing.	Tag includes a list of 1 material chosen for use in clothing.	Tag does not include a list of materials chosen for use in clothing.