

MAKING AN UNOCCUPIED HOSPITAL BED

Performance Standards 12C/11B/13A.H

Students will apply the concepts, principles and processes of technological design to examine the conservation of energy (broadly) within health occupations classroom settings accordingly:

- *Knowledge*: understand the principles of conservation of energy in terms of activities and efficiency.
- *Application*: design and conduct a test for efficiency in ordinary task settings.
- *Communication*: present findings about efficiency measures and alternatives determined from investigation.

Procedures

1. ***In order to know and apply concepts that describe properties of matter and energy and the interactions between them (12C); the concepts, principles and processes of technological design (11B); and the accepted practices of science (13A)***, students should experience sufficient learning opportunities to develop the following:

- Generate strategies to test safety practices and procedures.
- Suggest appropriate materials, equipment and success variables/criteria for efficiency test.
- Create and conduct a test of safety practice or procedure for efficiency.
- Collect and record data accurately and honestly in an appropriate format.
- Graph data appropriately according to tested variables.
- Represent results of analysis to produce findings.
- Compare data sets according to design criteria.
- Select graphs/charts that effectively report the design data.
- Propose logical explanations of success and/or errors.
- Diagram conservation of energy in common examples.
- Generate additional modifications for later testing which could improve efficiency or safety.

Note to teacher: This activity relates to knowledge associated with Standard 12C broadly, while addressing Performance Descriptors for Stage H within Standards 11B and 13A. Health Occupations students need to be aware of how much energy is expended while caring for a patient by testing and comparing safety or procedural processes. Nursing assistants may perform many tasks such as lifting and transferring, bathing and other personal care duties; passive range of motion exercises; repositioning; and bed-making. These tasks must also be completed in a given amount of time. The work may be physically taxing. Using recommended procedures and following safety regulations can save energy, reduce on-the-job injuries and decrease the time spent at the task, while providing appropriate patient care.

2. Have students review and discuss the assessment task and how the rubric will be used to evaluate their work.
3. Provide each student with a copy of the “Making an Unoccupied Hospital Bed” worksheet. Supply the students with the listed materials.
4. This assessment was created for making an unoccupied bed but may be altered to assess other tasks performed by health care workers. A possible test can be designed which considers the energy or efficiency involved in bed-making. Students will make an unoccupied bed before studying the suggested procedure found in their textbook. The bed-making will be performed again following suggested guidelines and safety rules. Data should be collected using appropriate equipment for testing pulse, respiration, number of steps, etc. Scenarios may be set up to emphasize the need for organization when performing a skill. Scenarios could include forgetting pieces of linen and having to make trips to the linen closet or not following a safety procedure such as raising the bed. Students should compare efficient and less efficient processes quantitatively and qualitatively. They should suggest improvements to the procedures which could produce greater safety or efficiency.

5. Evaluate each student's work using the Science Rubric as follows and add the scores to determine the performance level:
- *Knowledge:* The principles of conservation of energy and efficiency demonstrated in procedure test were explained qualitatively and quantitatively.
 - *Application:* The procedure test was conducted effectively to document efficiency, safety and accuracy.
 - *Communication:* Findings (graphic and narrative) should be well organized and detailed sufficiently to demonstrate an understanding of the need for efficiency and safety in health care.

Examples of Student Work

- [Meets](#)
- [Exceeds](#)

Time Requirements

- 1 or 2 class periods

Resources

- Pulse oximeter
- Pedometer
- Stethoscope
- Nursing Assistant textbook (procedure for unoccupied bed)
- Stop watch
- Making an Unoccupied Hospital Bed Student Worksheet
- Science Rubric

MAKING AN UNOCCUPIED HOSPITAL BED
Student Worksheet

1. Your task is to make an unoccupied bed before reading the procedure in the textbook. Before beginning the task, your peer partner will obtain your pulse and respiratory rate and a pulse oximeter reading. The results will be recorded on the chart below, along with a reading of “0” for the pedometer and time. After applying the pedometer, you will make an unoccupied bed. Your partner will time the procedure. **Immediately** following the task, your partner will take the required measurements and record them.

Method	Pulse Rate	Respiration Rate	Pulse Oximeter Reading	Pedometer Reading	Time to Complete
Pre-procedure					
Post Procedure					

2. Your next task is to make an unoccupied bed after reading and practicing the procedure in the textbook. Before beginning the task, your peer partner will again obtain your pulse and respiratory rate and a pulse oximeter reading. The results will be recorded on the chart below, along with a reading of “0” for the pedometer and time. After applying the pedometer, you will make an unoccupied bed following the recommended procedure and safety requirements. Your partner will time the procedure. **Immediately** following the task, your partner will take the required measurements and record them.

Method	Pulse Rate	Respiration Rate	Pulse Oximeter Reading	Pedometer Reading	Time to Complete
Pre-procedure					
Post procedure					

Answer the following questions regarding the task:

3. What did you do differently the second time you made the bed?
4. Did you notice any change physically such as increased or decreased exertion or muscle stretching and pulling?
5. How did the data on the tables compare?
6. What factors may have influenced the results of your data?
7. What is your conclusion on which method uses less time and energy, while following safety regulations and providing good patient care?
8. What would you propose for improvements on the recommended procedure (if any)?

SCIENCE RUBRIC

Exceeds - must receive no more than one 3 and the rest 4s in the other areas of the rubric.

Meets - may receive no more than one 2 and a combination of 3s and 4s in the other areas of the rubric.

Approaches - may receive no more than one 1 and a combination of 2s, 3s or 4s, in the other areas of the rubric.

Begins - must receive at least a 1 in all 3 areas of the rubric.

	KNOWLEDGE	APPLICATION	COMMUNICATION
	Knows and understands scientific terms, facts, concepts, principles, theories and methods.	Applies scientific knowledge, skills and methods to manipulate, analyze, synthesize, create and evaluate.	Communicates scientific knowledge and applications through writing, speech and visual displays.
4	<ul style="list-style-type: none"> • Descriptions of scientific terms, facts, concepts, principles, theories and methods are complete and correct. 	<ul style="list-style-type: none"> • Applications are thorough, appropriate and accurate. 	<ul style="list-style-type: none"> • Written, oral and/or visual communication is well organized and effective.
3	<ul style="list-style-type: none"> • Descriptions of scientific terms, facts, concepts, principles, theories and methods are mostly complete and correct. 	<ul style="list-style-type: none"> • Applications are mostly thorough, appropriate and accurate. 	<ul style="list-style-type: none"> • Most of the written, oral and/or visual communication is well organized and effective.
2	<ul style="list-style-type: none"> • Descriptions of scientific terms, facts, concepts, principles, theories and methods are somewhat complete and correct. 	<ul style="list-style-type: none"> • Applications are somewhat appropriate and accurate. 	<ul style="list-style-type: none"> • Some of the written, oral and/or visual communication is organized and effective.
1	<ul style="list-style-type: none"> • Descriptions of scientific terms, facts, concepts, principles, theories and methods are minimally present or correct. 	<ul style="list-style-type: none"> • Applications are minimally appropriate and accurate. 	<ul style="list-style-type: none"> • Little of the written, oral and/or visual communication is organized and effective.
0	<ul style="list-style-type: none"> • All descriptions of scientific terms, facts, concepts, principles, theories and methods are missing and/or incorrect. 	<ul style="list-style-type: none"> • All applications are missing and/or incorrect. 	<ul style="list-style-type: none"> • All of the written, oral or visual communication is missing and/or lacks organization.
Score			