

The following pages include the answer key for all machine-scored items, followed by a sample response for the hand-scored item.

- The rubrics show sample student responses. Student responses other than that shown in the rubric may earn full or partial credit.
- Which responses to hand-scored items receive full or partial credit will be confirmed during range-finding (reviewing sets of real student work)
- If students make a computation error, they can still earn points for reasoning or modeling.

Item Number	Answer Key
1.	A
2.	B
3.	B
4.	Open-Ended
5.	D
6.	C
7.	C
8.	Open-Ended
9.	B
10.	C
11	C
12.	Open-Ended

#4 Open Ended

Example Student Response:

Ireland experiences winter during the same time of year as the United States. Evidence to support this is the temperatures in each country are colder in January and warmer in July. One difference between Ireland and the United States is the severity of winter and summer; the United States has colder winters and warmer summers than Ireland.

1 point: Student identifies Ireland.

1 point: Student describes the average temperatures are colder in January and warmer in July, similar to the United States.

1 point: Student describes the average low temperatures are higher in Ireland than the United States (less extreme winters) or the average high temperatures are lower in Ireland (less extreme summers) or the average annual precipitation is higher in Ireland.

#8 Open Ended

Example Student Response:

The wave buoy converts the kinetic energy of wave motion into electrical energy. Larger waves will cause the buoy to move more, and this will make the generator produce more electricity. The wave buoy cannot convert light energy into electrical energy given its current design.

1 point: Student describes that kinetic (motion) energy is converted into electrical energy by the wave buoy device. [Note: Advanced students may correctly describe that the potential energy of the buoy on the peak of a wave is higher than it is in the trough of the wave, and that that potential energy gets converted to the kinetic energy of the buoy as it decreases in elevation, but the student must state that kinetic energy or the energy of the motion of the buoy is converted to electrical energy.]

1 point: Student identifies that larger waves will increase the electrical energy output of the device (cause the generator to produce more electricity).

1 point: Student identifies light or sound or wind or thermal/heat energy as types of energy that the wave buoy cannot convert to electrical energy given its current design.

#12 Open Ended

Example Student Response:

Student A's claim is supported by Figure 1 because the balloon is sealed onto the bottle and nothing is added or taken out. Table 1 supports the claim because if nothing is added or taken out, the final mass will be the same as the initial total mass of the items. Table 1 shows this initial mass as 43 grams.

1 point: Student identifies that student A's claim is best supported by the information in Figure 1 and Table 1.

1 point: Student describes that the setup in Figure 1 is sealed (a closed system) so all the matter that is present before mixing is still present after mixing.

1 point: Student describes the total mass of the substances as 43 grams and this should be the same after mixing since no matter was added or removed.