

✓ CHECK YOUR LEARNING

Suggested Answers

1. (a) Sample answer: This lesson helped me realize that chemical reactions conserve mass because it highlights the role that gases play in chemical reactions.
(b) Answers will vary. Sample answer: I am still unsure of how gases can be weighed when they have so little mass.
2. (a) The law of conservation of mass states that in a chemical reaction, the mass of the reactants is equal to the mass of the products.
(b) The number of atoms of reactants has to equal the number of atoms of the products.
(c) A balanced chemical equation represents the law of conservation of mass better because this accounts for the number of atoms of each element. A skeleton equation just has the types of atoms, not the relative amounts.
3. (a) This is not an exception. The mass decrease can be accounted for because water is evaporated and fats and oils leak from the patties during cooking.
(b) That is true, but the tree is taking in more and more nutrients and water, increasing the number of reactants. This is not an exception.
(c) This is not an exception because oxygen is added to the copper penny when it burns.
(d) This is not an exception as some of the water I took in during the day evaporated off my skin.
4. Sample answer: I predict that the mass of the roof will increase over time because the copper reacts with oxygen in the air to make a copper oxide coating. This does not violate the law of conservation of mass because oxygen is added to the copper.
5. Sample answer: Place the vinegar in one paper cup and the baking soda in another small paper cup. Carefully put both cups into a plastic bag without mixing the reactants. Determine the mass of the bag, and the two separate cups. Then pour the vinegar into the cup of baking soda, still within the bag. Allow the reaction to occur. Determine the mass of the bag and the products now. They should be the same.
6. (a) The mass of the gas is 10 g.
(b) For (a), it is assumed that some of the gas escaped.
7. This applies to the conservation of mass because the atoms that you start with (in the reactants) are still there in the products at the end. There is nothing gained or lost during this reaction.