

Content Practice B**LESSON 4****Chemical Properties and Changes****Directions:** Complete the chart with the correct terms on the lines provided.**Balancing Chemical Equations**When methane (CH_4) reacts with oxygen (O_2), the reaction produces carbon dioxide (CO_2) and water (H_2O). Write and balance a chemical equation for this reaction.**Step 1. Write the equation and check to see if it is balanced.****a. Write the chemical formulas with the**

(1.) _____ on the left side of the arrow and the

(2.) _____ on the right side of the arrow.

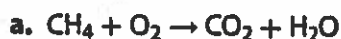
b. Count the atoms of each

(3.) _____ in the reactants and the products.

- Note which elements have a balanced number of atoms on each side of the

(4.) _____.

- If all elements are balanced, the overall equation is balanced. If not, go to step 2.

**b. reactants \rightarrow products**

C = 1 C = 1 (5.) _____

H = 4 H = 2 not balanced

O = 2 O = 3 (6.) _____

Step 2. Add coefficients to the chemical formulas to balance the equation.**a. Pick an element in the equation whose atoms are not balanced, such as hydrogen. Write a**

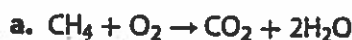
(7.) _____ in front of a reactant or a product that will

(8.) _____ the atoms of the chosen element in the equation.

b. Recount the atoms of each element in the

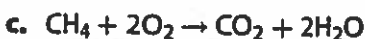
(9.) _____ and the

(10.) _____ and note which ones are balanced on each side of the equation.

c. Repeat steps 2a and 2b until all atoms of each element in the (11.) _____ equal those in the products.**b.** C = 1 C = 1 (12.) _____

H = 4 H = 4 balanced

O = 2 O = 4 (13.) _____



C = 1 C = 1 (14.) _____

H = 4 H = 4 balanced

O = 2 O = 4 (15.) _____

Is the equation balanced?

(16.) _____

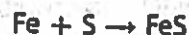
Key Concept Builder

LESSON 4

Chemical Properties and Changes

Key Concept Why are chemical equations useful?

Directions: Use the equation to answer each question on the lines provided.



1. What does a chemical equation show?

2. What does the part of the equation to the left of the arrow represent?

3. What does the plus sign indicate?

4. What does the arrow indicate?

5. What does the part of the equation to the right of the arrow represent?

6. What is the difference between products and reactants?

7. How are chemical equations helpful?
