Lewis Dot Structures Worksheet

Scoring guide · one credit per question · review written work against each rubric

Lewis Dot Structures

Question 1

Choice (2)

Choice (2). Two H atoms contribute 2 electrons altogether. O contributes 6 electrons, for a total of 8.

Question 2

Draw H–O–H with two lone pairs on O and none on H. Each single bond represents two shared electrons. The two bonds and two lone pairs account for all eight valence electrons. Accept any orientation.

Question 3

Choice (3)

Choice (3). Each Cl begins with seven valence electrons and contributes one to a single shared bond. Six unshared electrons remain on each Cl, making three lone pairs.

Question 4

Four bonds contain eight electrons in total. C contributes four valence electrons and the four H atoms contribute four, so all eight are in bonds. Accept equivalent electron accounting.

Checking Models of Ammonia

Question 5

Choice (2)

Choice (2). Three single bonds represent 3 × 2 = 6 shared electrons.

Question 6

Place N at the center with three N–H single bonds and one lone pair on N. No lone pairs belong on H. Six shared electrons and two nonbonding electrons give eight valence electrons in total. Accept any orientation.

Question 7

Each H already has two shared electrons around it from its single bond. A lone pair on H would give it more than two electrons. The pair on N completes its octet. Accept equivalent shell or electron-count reasoning.

Question 8

Choice (4)

Choice (4). The triple bond represents six shared electrons. Two lone pairs contribute four more electrons. The total of ten agrees with five valence electrons from each N.