# London Dispersion Forces Worksheet

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

## London Dispersion Forces

### Question 1

Choice (2)

An uneven electron distribution briefly gives opposite sides of the first atom partial charges, which can shift the electrons in a nearby atom.

### Question 2

Choice (3)

Both atoms and molecules have electron clouds that can fluctuate.

### Question 3

More easily distorted clouds produce stronger instantaneous and induced dipoles. Dispersion attractions are stronger between Xe atoms than between Ne atoms.

### Question 4

The molecules separate when intermolecular attractions are overcome. Each molecule stays $N_2$, so its N≡N bond remains intact.

## Boiling Points of Noble Gases

### Question 5

Choice (3)

−153 °C is higher than −186 °C and −246 °C.

### Question 6

For example, Kr has 36 electrons and boils at −153 °C, while Ar has 18 and boils at −186 °C. Kr’s larger, more polarizable cloud gives stronger attractions, so a higher temperature is needed to separate its atoms. Any valid pair works.

### Question 7

−186 °C − (−246 °C) = 60 °C.

### Question 8

Choice (4)

The trend links stronger dispersion attractions to higher boiling points.