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QUESTION 1

Select all that apply.

Many factors affect the strength of attraction of van der Waals forces, and they are:

- [ ] molecule's solubility
- [ ] molecule's color
- [x] molecule's ability to attract electrons
- [x] molecule's shape
- [x] molecule's size
- [ ] atoms' neutron numbers

QUESTION 2

Drag and drop the best choices to complete the sentence.

Compared with ionic and covalent bonds, van der Waals forces are

weak ✓ forces of attraction that are easy ✓ to break.

difficult strong

QUESTION 3

Select the best choice.

What kind of interaction forms between the gecko's feet and the window glass?

- nuclear bonds
- covalent bonds
- ionic bonds
- van der Waals forces ✓

QUESTION 4

Select the best choice from each drop-down menus.

Atoms in a water molecule share electrons to form covalent bonds ✓ . Hydrogen and oxygen atoms do not share electrons equally, resulting in an uneven distribution of charges. This leads to the formation of electrostatic attractions between the water molecules called van der Waals forces ✓ .

QUESTION 5

Select the choice that correctly completes the sentence.



Some insects, like spiders, can climb smooth surfaces because of the _____.

- ○ ionic bonding
- ○ covalent bonding
- ✓ van der Waals forces
- ○ active forces

QUESTION 6

Drag and drop the correct choices.

Which forces hold the particles listed below together?

The carbon atoms in a diamond share electrons, and are held together by covalent bonds ✓.

The sodium and chloride ions are held together by ionic bonds ✓.

nuclear bonds | electron bonds | subatomic bonds | van der Waals forces

QUESTION 7

Select the best choice.

Which of the following examples apply to van der Waals forces?

- [x] a gecko walking up a smooth wall
- [ ] a strong acid mixed with water

- [x] water molecules in a water droplet
- [x] a spider climbing a window
- [ ] sodium and chloride ions in a salt crystal
- [ ] hydrogen and oxygen atoms in a water molecule

QUESTION 8

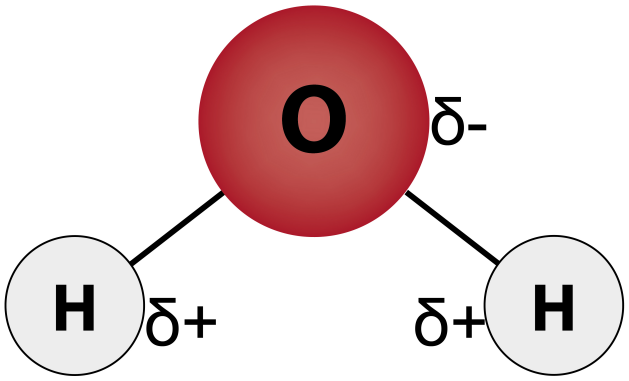
Select the best choice from each drop-down menu.

Van der Waals forces can be described as forces of attraction between oppositely charged oppositely charged regions of nearby molecules.

QUESTION 9

Select the best choice.

The oppositely charged regions of a water molecule are because:



- [x] The atoms of different elements do not share electrons equally.
- [ ] Diffusion of the water molecules.
- [ ] Collisions between the water molecules.
- [ ] Van der Waals forces between molecules.

QUESTION 10

Select the best choice.

Between which particles will van der Waals forces have a large effect?

- [ ] Hydrogen and oxygen atoms inside a water molecule.
- [x] Molecules of a solid that are close together.
- [ ]

Molecules of a gas that are far apart.

Positive and negative ions that are close together.

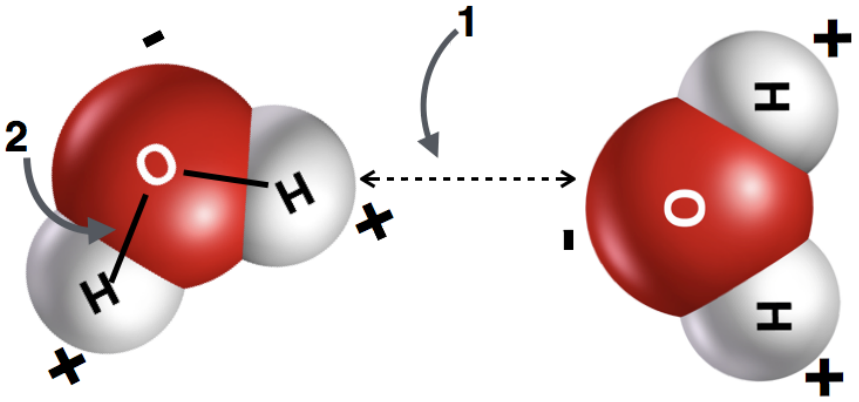
QUESTION 11

Drag and drop to match the labels with the correct terms.

The figure below shows two water molecules.

Label 1: Van der Waals force

Label 2: Covalent bond

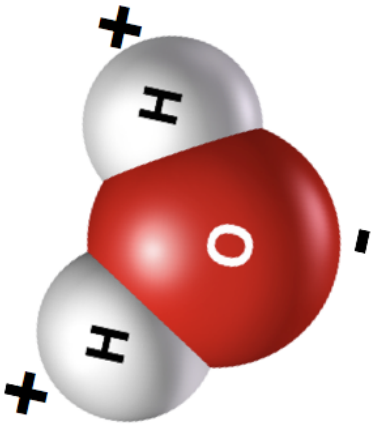


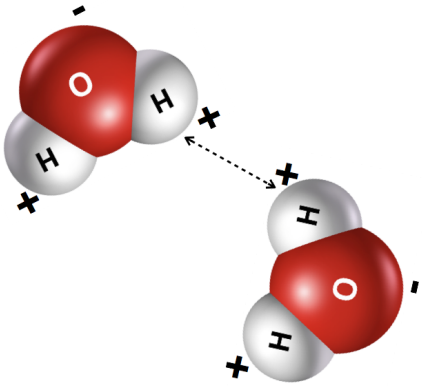
Repulsion force | Electrons | Ionic bond | Charge

QUESTION 12

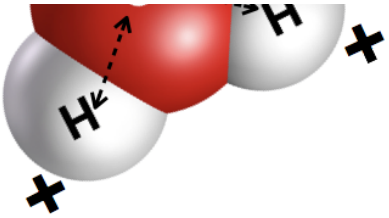
Select the best choice.

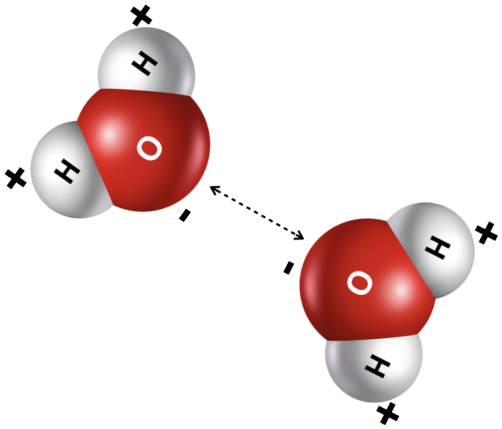
A water molecule has a partial negative oxygen end and partial positive hydrogen ends. Which diagram **correctly** shows the van der Waals forces in water?

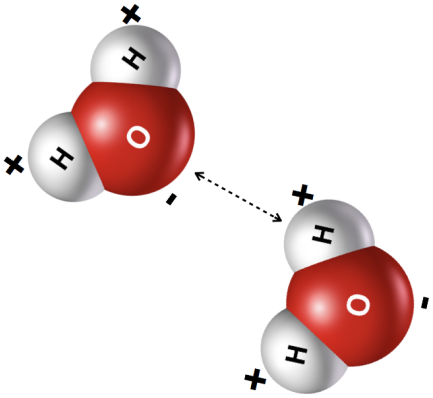












QUESTION 13

Select all that apply

Which of the following statements are **TRUE** about van der Waals forces?

- [ ] Van der Waals forces involve the sharing or transfer of electrons.
- [x] Van der Waals forces act between molecules.
- [ ] Van der Waals forces are strong forces of attraction that are hard to break.
- [ ] The strength of attraction of van der Waals forces depends on a molecule's color.
- [x] Van der Waals forces attract neutral molecules together.
- [ ] Van der Waals forces act between positive and negative ions.

QUESTION 14

Choose the best choice.

Unlike ionic and covalent bonds, van der Waals forces are weak forces of attraction that are easier to break.
Which choice represents a scenario that will require the least amount of energy to separate?

- [x] two water molecules

- two positively charged hydrogen ions
- oxygen and hydrogen atoms inside a water molecule
- a positive and a negative ion

QUESTION 15

Select the best choice.

Which of the following scenarios is **NOT** related to van der Waals forces?

- an insect moving on a glass surface
- attraction of water molecules to each other
- water moving upward in a plant's stem
- formation of sodium chloride, NaCl (table salt) ✓