

Name: _____

Paintball: Chemistry in Motion

Directions: *Before reading*, in the first column, write “A” or “D” indicating your agreement or disagreement with each statement. *As you read the article*, compare your opinions with information from the article. *In the space under each statement*, write a statement from the article that supports or refutes your original ideas.

Me	Text	Statement
		1. More than a billion paintballs are produced each year.
		2. Paintballs are made to deform when they strike someone so that the force of impact is reduced
		3. The best paintballs are made using gelatin from horse hooves.
		4. Paintballs contain water-soluble compounds, but no water.
		5. If a paintball is dropped into water, it will shrink.
		6. Water is polar because the oxygen atom in a water molecule attracts electrons to itself more than the hydrogen atoms do, creating a polar bond.

		7. All molecules with polar bonds are polar
		8. Hydrogen bonds are weak intermolecular forces
		9. The CO ₂ inside a gas cartridge is in gaseous form
		10. The pressure inside a CO ₂ gas canister used for launching paintballs is more than 60 times atmospheric pressure.

Directions: As you read, complete the chart below. You are required to list at least FOUR bulleted points for each topic.

<p>History of paintballs</p>	
<p>Challenges to making paintballs for sport</p>	
<p>Chemicals used in making paintballs</p>	
<p>Chemistry of how the paintball marks work</p>	

Directions: Answer the following questions in complete sentences.

1. What is the source of the gelatin that makes up the outer coating of paintballs?
2. Name the substance that comprises most of the fill in a paintball.
3. Name the type of bond in which the partially positive charge around a hydrogen atom is attracted to a non-bonding electron pair in an oxygen atom.
4. What is the typical propellant used in paintball markers?
5. In m/s, what is the initial velocity of a paintball shot from a marker?
6. In what decade did the sport of paintball begin?