

Physics Summer Reading

Science of soccer: Ball Aerodynamics Focus of Research

<http://www.sciencedaily.com/releases/2010/07/100701183605.htm>

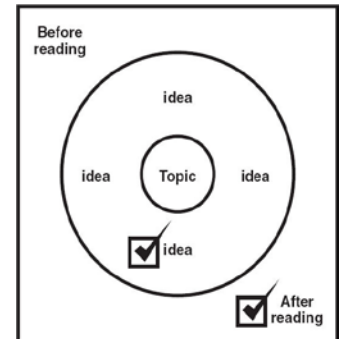
Focus Question: How do the world's greatest players able to make a soccer ball do things that would seem to defy the forces of nature?

➤ Prior to reading, fill in your Circle Map with any information that you already know about ball aerodynamics.

KEY WORDS

Context, List, Define, Tell everything you know,
Brainstorm, Identify, Relate prior knowledge,
Explore the meaning, Associate, Generate

➤ After reading the article, compare the facts in the article with what you had originally wrote. If any of the information is incorrect, cross it out and if it is correct then place a check next to it. Fill in the remainder of the circle map with any new information gained from reading the article defining the concept of ball aerodynamics.



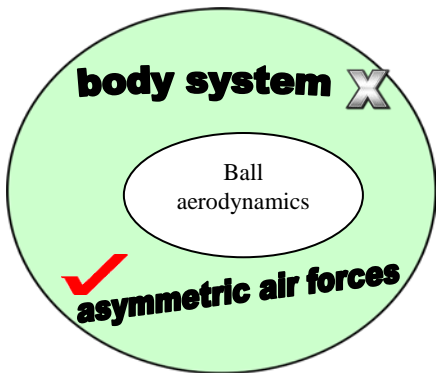
Guiding Questions for Constructing a Circle Map:

- How does surface roughness and asymmetric air forces contribute to its path once it leaves a player's foot?
- How does reduced air density in games played at higher can contribute to some of the jaw-dropping ball trajectories?

Guiding Questions for Adding a Frame of Reference:

- How do you know what you know?
- Where are you getting your information for prior and post reading?
- Is there a specific point of view that is influencing your definition or ideas?
- Why are chemical reactions important?
- What are your background experiences that are influencing your ideas?

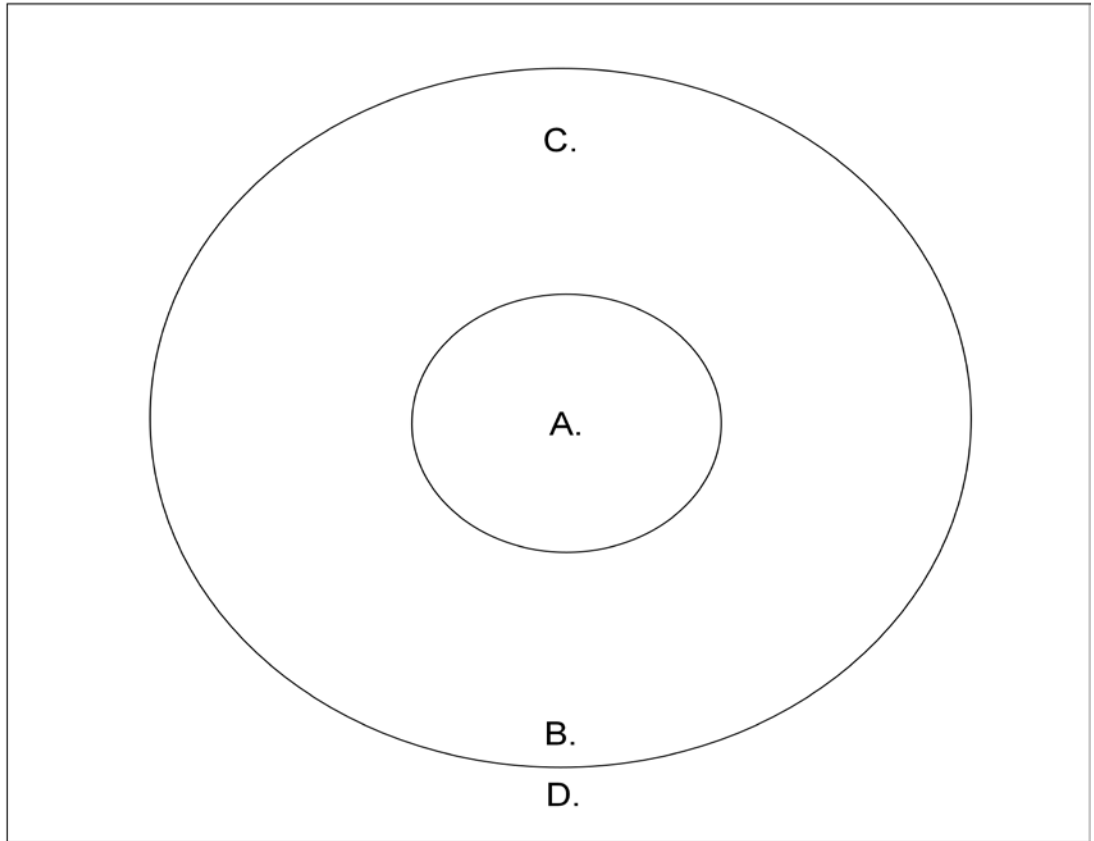
Example(s):



Class Title:
Activity:

Name: _____
Date: _____ Period: _____

- A. What is the Topic?
- B. What do I know about the topic?
- C. What new information was gained after reading?
- D. What in my life experience is related to this topic?



Physics Summer Reading Rubric: Circle Map

Physics Summer Reading- Science of Soccer: Ball Aerodynamics Focus of Research

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Student Name: _____

CATEGORY	4	3	2	1
Concept identified	A concept is clearly identified in the center of the Circle Map that is correctly being defined from the reading.	A concept is identified from the reading, but is in the incorrect location on the Circle Map.	A concept is identified in the center of the Circle Map, but is the incorrect concept for the reading.	A concept is identified somewhere in the Circle Map, but is the incorrect concept for the reading.
Prior reading	Clear evidence that the reader brainstormed their prior knowledge about the concept being identified with at least 4 ideas, pictures or symbols.	Some evidence that the reader brainstormed their prior knowledge about the concept being identified with 3 ideas, pictures, or symbols.	Partial evidence that the reader brainstormed prior knowledge about the concept being identified in the reading with fewer than 2 ideas, pictures, or symbols.	Unclear evidence that the reader brainstormed their prior knowledge about a different concept other than the one being identified from the reading.
After reading	Clear evidence that the reader defined the concept being identified with at least 4 new ideas, pictures or symbols.	Some evidence that the reader defined the concept being identified with 3 new ideas, pictures, or symbols.	Partial evidence that the reader defined the concept being identified with fewer than 2 new ideas, pictures, or symbols.	Unclear evidence that the reader defined the concept being identified with incorrect ideas, pictures or symbols.
Validation of ideas, pictures and/or symbols	Evidence that the reader used the reading to validate all of their initial ideas, pictures, and/or symbols.	Evidence that the reader used the reading to validate a few of their initial ideas, pictures, and/or symbols.	Unclear evidence that the reader used the reading to validate a few of their initial ideas, pictures, and/or symbols.	Unclear evidence that the reader used the reading to validate their initial ideas, pictures, and/or symbols.
Frame of Reference	A frame of reference was added to the Circle Map that includes sources for prior and post reading knowledge of the concept being defined.	A frame of reference was added to the Circle Map that includes a partial list of sources for prior and post reading knowledge of the concept being identified.	A frame of reference was added to the Circle Map that includes sources for only one of the following: prior or post reading knowledge of the concept being identified.	Sources were included somewhere on the Circle Map for prior and post reading knowledge, but not in a frame of reference.