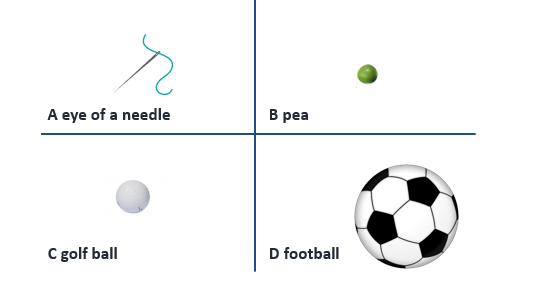
**Sports field**

If a sports field represents the size of an atom, what object represents the size of the nucleus?

The sports field is about 100m long.

Select the best answer.



*Chemistry > Big idea CPS: Particles and structure > Topic CPS6: Periodic Table > Key concept CPS6.1: Atomic model*

|  |
| --- |
| **Response activity** |
| **Sports field** |

**Overview**

|  |  |
| --- | --- |
| Learning objective: | The structure of an atom may be represented by an atomic model. |
| Observable learning outcome: | Recognise that a typical diagram of atomic structure is not drawn to scale. |
| Activity type: | application and practice |
| Key words: | atom, nucleus |

This activity can help develop students’ understanding by addressing the misunderstandings revealed by the following diagnostic question:

* Relative sizes

**What does the research say?**

Research (Harrison and Treagust, 1996) into students’ mental models of atoms, found that even though some students stated that an atom is mostly space, they did not convey this through their diagrams. However, the authors also note that this is not surprising as textbook diagrams of the atom are not typically drawn to scale.

**Ways to use this activity**

This activity gives students the opportunity to practise applying their understanding and to clarify their thinking through discussion. To support this, students should answer the question in pairs or small groups.

*Differentiation*

If some students are working with a teaching assistant, then a list of prompt questions for the teaching assistant could help to make this activity more purposeful.

**Expected answers**

B Eye of a needle

**Acknowledgments**

Developed by Helen Harden (UYSEG).

Images:

<https://upload.wikimedia.org/wikipedia/en/thumb/e/ec/Soccer_ball.svg/1024px-Soccer_ball.svg.png>

<https://www.publicdomainpictures.net/pictures/40000/nahled/golf-ball.jpg>

<http://pngimg.com/uploads/pea/pea_PNG5.png>

<http://3.bp.blogspot.com/_grV-Ugzbc8Q/TFBM6qXmQbI/AAAAAAAAEe8/FCKVsZwJK6k/s1600/sewing7.jpg>

**References**

Harrison, A. G. and Treagust, D. F. (1996). Secondary students' mental models of atoms and moelcules: Implications for teaching chemistry. *Science Education,* 80(5)**,** 509-534.