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Tips on using Poll Everywhere to enhance student learning for technology based topics in Radiography

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Why did I choose to use Poll Everywhere

- Students often struggle with Radiation Science and Technology topics
- Some are reluctant to answer questions unless confident
- It is difficult to know if some are shy / lack the understanding
- How can a large group session be made interactive (65)
- Where are the gaps in their knowledge or misunderstandings?



Questions grouped into topics





















▶ Pre PE interactivity survey	10 Questions
▶ Post PE interactivity survey	10 Questions
▶ PE Research attenuation and interactions	8 Questions
▶ PE Research quality and intensity of beam	8 Questions
▶ RC1031 Radiation Protection	10 Questions
▶ RD3022	10 Questions
▶ CT Physics 1	16 Questions
▶ CT Physics 2	6 Questions
▶ CT Physics 3	10 Questions
▶ CT Physics 4	8 Questions
▶ RD3022 Radiation Protection Legislation	13 Questions
▶ RD1034/Term 1/X-ray Circuit	6 Questions
▶ RD1034 Term 1/X-ray tube	9 Questions
▶ RD1034/Term 1/X-ray Production	4 Questions
▶ RD1034 Term 1/Attenuation and Interactions	4 Questions
▶ RD1034 Term 1/Quality and intensity	1 Question
▶ RD1034/Term 1/CR, DR and PACS	6 Questions
▶ RD1034 Term 1/Equipment	6 Questions
▶ RD1034 Term 2/Mobile units	8 Questions

How did I use Poll Everywhere

- Open ended (cluster) or MCQs (choice of 4 answers)
- Students could work together using smart phones, iPads etc.
- Answers anonymous initially / registered for recent cohort
- Which topics are they struggling with?
- It tested their understanding and made exam revision sessions interactive as it involved the majority of students
- It kept students engaged and they appeared to enjoy the whole process even though it could be a dry topic

Several questions per topic

▶	RD1034/Term 1/X-ray Circuit	6 Questions
▼	RD1034 Term 1/X-ray tube	9 Questions
	<input type="checkbox"/> With reference to a diagnostic x-ray tube, why is tungsten used for the TARGET?	 31 Responses
	<input type="checkbox"/> Why is there a vacuum inside the X-ray tube?	 29 Responses
	<input type="checkbox"/> With regard to a diagnostic x-ray tube, what is meant by the "focal spot"?	 24 Responses
	<input type="checkbox"/> What is the minimum "Total Filtration" required in a diagnostic x-ray tube?	 27 Responses
	<input type="checkbox"/> The glass envelope of an X-ray tube:	 31 Responses
	<input type="checkbox"/> Copper is used in a stationary anode x-ray tube because:	 32 Responses
	<input type="checkbox"/> What is the atomic number of tungsten?	 14 Responses
	<input type="checkbox"/> Good thermionic emitters have "Low Work Function".	 29 Responses
	<input type="checkbox"/> In a diagnostic X-ray tube, when the exposure button is fully pressed:	 32 Responses
	+ Add a question	
▶	RD1034/Term 1/X-ray Production	4 Questions


Open ended -
Hide answers initially

You can see how
many have answered

With reference to a diagnostic x-ray tube, why is tungsten used for the TARGET?

When poll is active, respond at PollEv.com/jaynem

On the web



Total Results: 31

In a diagnostic X-ray tube, when the exposure button is fully pressed:

When poll is active, respond at PollEv.com/jaynem

- A high potential difference is applied across the tube
- The electrons travel at high speed from anode to cathode
- The anode is negative and the cathode is positive
- All of the above

Total Results: 32

Show answers
after a short time
to avoid others
copying

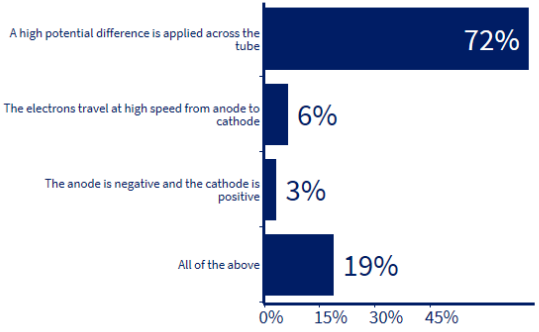
With reference to a diagnostic x-ray tube, why is tungsten used for the TARGET?

When poll is active, respond at PollEv.com/jaynem

- "73" 3 months ago
- "High melting point" 3 months ago
- "Good thermal conductor" 3 months ago
- "Because it has high atomic number!!!" 3 months ago
- "A good thermionic conductor" 3 months ago
- "High atomic number, low vapor pressure, high melting point" 3 months ago
- "Because it has low vapour pressure" 3 months ago
- "It has a high melting point of 3370 degree centigrade" 3 months ago
- "High atomic number, good thermal conductor." 3 months ago
- "Because if high atomic #. Z=74" 3 months ago

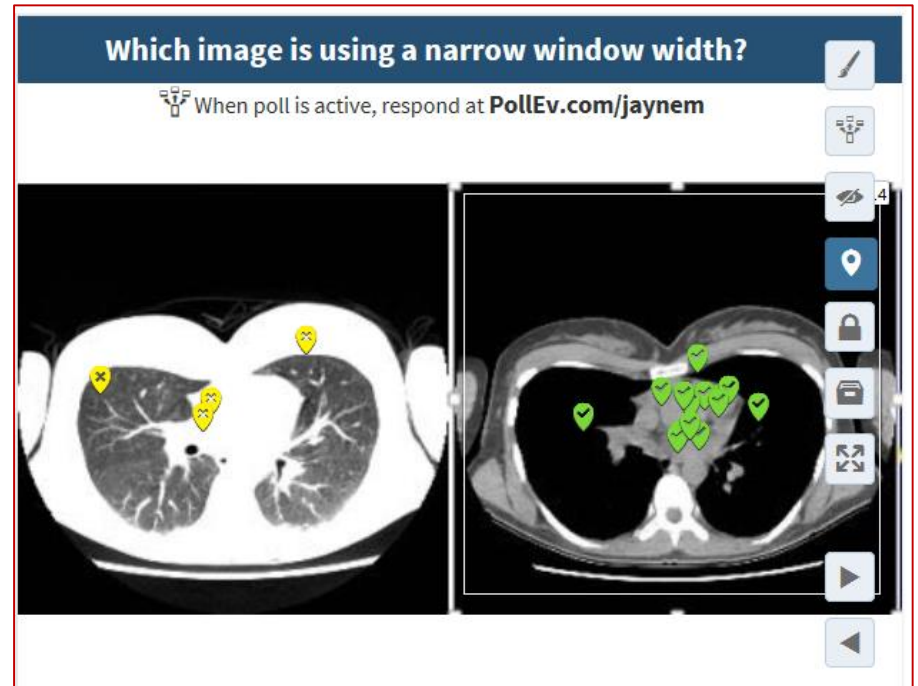
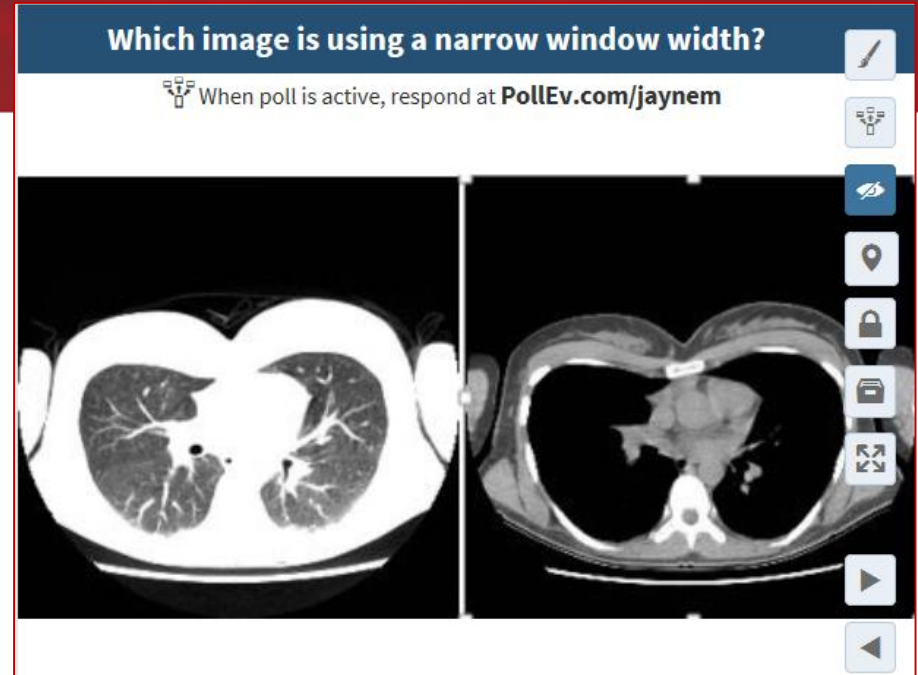
In a diagnostic X-ray tube, when the exposure button is fully pressed:

When poll is active, respond at PollEv.com/jaynem



Answer	Percentage
A high potential difference is applied across the tube	72%
The electrons travel at high speed from anode to cathode	6%
The anode is negative and the cathode is positive	3%
All of the above	19%

Clickable image

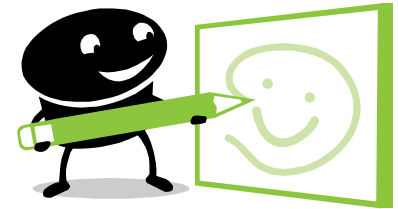


Student response to the use of PE



- Happy to get involved whether anonymised or not
- Student feedback was very positive when used as a revision tool following the delivery of core topics
- PE supplemented learning and students requested more
- Students get immediate formative feedback
- The lecturer also gets an indication of whether or not students are getting to grips with topics

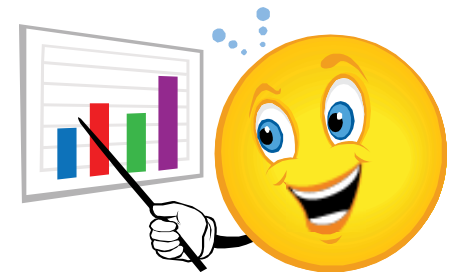
Tips for using PE during teaching



- Set the ground rules – no silly answers
- Provide encouragement when they get the answers correct
- Start by using simple style questions
 - Cluster style answers to open ended questions / MCQs
 - Allow at least 30 seconds before showing responses
 - But don't wait too long as they may get frustrated
- Don't ask too many questions in one go
- Allow time to go over topics in detail - misunderstandings

Tips for using PE during teaching sessions cont.

- Ask a few questions at the start / end of a lecture
- Before a revision class ask students open ended questions on what they would like more information on
- PE must be used as part of delivery and not just a gimmick
- Always prepare questions in advance of the session:
 - Relevance
 - Ambiguity - MCQs
 - Correct typing errors



Future research

Does the use of PE during face to face lectures?

- Improve student engagement
- Enhance performance during assessments

Or is it just another gimmick

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