



# Year 10 Science – Assessment Task 3, 2017

## Contemporary Science: Research and Oral Presentation

**TOPIC:** Using Science to Solve Problems – Contemporary Issues

**Due Date:** Term 3, Week 7 – Tues 29/08/17 (MK, TM, DP, MD); Wed 30/08/17 (SM)

**Outcomes Assessed:**

- **SC5-7WS:** Processes, analyses and evaluates data from secondary sources to develop evidence-based arguments and conclusions
- **SC5-8WS:** Applies scientific understanding and critical thinking skills to suggest possible solutions to identified problems
- **SC5-9WS:** Presents science ideas and evidence for a particular purpose and to a specific audience, using appropriate scientific language, conventions and representations

**Context for the Task:**

Science provides the processes for answering interesting and important questions. Scientific knowledge is able to be challenged and refined as new evidence arises or existing knowledge is reconceptualised. Science provides explanations for a variety of phenomena and enables society to make sense of the natural world.

**Where can I find information about problems that can be addressed using science?**

TED Talks are short, influential videos delivered by expert speakers, covering a wide range of topics including science, technology and engineering.

They can be found at: <https://www.ted.com/>

Once at the TED Talk website:

1. Hover over the “*Watch*” menu option at the top of the screen.
2. Click on the first option: “*TED Talks: Browse the library of TED talks and speakers.*”
3. Under the “*Topics*” drop down menu, click on “*Science*”

**Your teacher will show you how to access the scientific TED talks during class.**

Below are some examples of TED talks which *identify and discuss strategies that have been proposed to address a scientific problem/issue:*

- **Why helmets don’t prevent concussions...and what might** (15min 56s): What is a concussion? Probably not what you think it is. In this talk from the cutting edge of research, bioengineer (and former football player) David Camarillo shows what really happens during a concussion -- and why standard sports helmets don't prevent it. Here's what the future of concussion prevention looks like.
- **Could we cure HIV with lasers?** (4min 25s): Swallowing pills to get medication is a quick, painless and often not entirely effective way of treating disease. A potentially better way? Lasers. In this passionate talk, TED Fellow Patience Mthunzi explains her idea to use lasers to deliver drugs directly to cells infected with HIV. It's early days yet, but could a cure be on the horizon?
- **Plant fuels that could power a jet** (14min 29s): Algae plus salt water equals ... fuel? At TEDxNASA@SiliconValley, Bilal Boman reveals a self-sustaining ecosystem that produces biofuels -- without wasting arable land or fresh water.

## What Next?

Your task is to research, prepare and present your very own 4 minute, TED Talk style video using iMovie or similar. Most of this assessment task will be done in your own time; however, you will be given ONE lesson in class to get started. Further in-class lessons may be provided to perform research and editing.



### STEPS TO FOLLOW TO PREPARE WELL: Start now!

- Go to the TED Talk website. Find a video/topic in the “Science” section which:*
  - Interests you
  - Identifies a problem/issue and suggests strategies to resolve the issue
  - Is approximately 15 minutes or less
  - Is **approved by your teacher** – give your teacher the video name and URL address
  
- Watch your video a few times. Whilst watching you should make detailed notes to answer the following questions:*
  1. **Describe** the issue/problem that is being discussed
  2. **Explain** why this is an important issue for society
  3. **Describe** the strategy/strategies identified to solve the problem
  4. **Explain** how the strategy/strategies solve the problem
  5. **Evaluate** the strategy/strategies discussed – you might like to consider: effectiveness, practicality, cost, skill requirements, need etc.
  6. Provide an overall **conclusion** – do the strategies discussed offer a plausible solution to the problem?
  
- Perform research to find TWO more secondary sources that address the problem and/or solution. These sources should be:*
  - Reliable and valid – try finding journal articles rather than informal internet sites. Ask for help!
  - Written sources (not videos)
  - Be correctly referenced on a sheet of paper (as per Appendix B10 of your school diary) and handed in with your video
  
- Read and analyse these sources to make notes on the 6 questions above. Also answer this question:*
  7. **Assess** whether the information in these two sources supports or disagrees with the TED talk information (or simply offers alternative ideas/solutions). Give examples.

*You will use these notes to help you prepare your video.*



### WHAT TO SUBMIT TO YOUR TEACHER FOR MARKING

- Make your own TED Talk style video presentation to share your findings about the problem. Your video should:*
  - Be made using iMovie or similar
  - Present information gathered from your *three* sources to answer the 7 questions above. Be sure to “combine” the information from the sources. DO NOT simply answer the questions one by one.
  - Be approximately 4 minutes. Penalties apply for <3min and >5min
  - Show YOU talking/presenting for at least  $\frac{3}{4}$  of the time. Try not to read directly from cards.
  - Be pitched at a High School student level
  - Use appropriate scientific language

You may use costumes and any relevant props. You may also include “still” shots of graphs, tables and diagrams where appropriate.

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		<b>Mark:</b>	<b>/20</b>
<b>Student Name:</b>		<b>Class:</b>	
<b>Criteria</b>		<b>Grade:</b>	
<b>A</b>	Processing and analysing data (SC5-WS7). The student has achieved <i>very high competence</i> in terms of: <ul style="list-style-type: none"> <li>• Selecting and extracting relevant information from tables, graphs, texts and audiovisual resources</li> <li>• Critically evaluating information from at least 3 reliable secondary sources (including chosen TED talk) and including a correct reference list as per Appendix B10 of the school diary</li> <li>• Evaluating conclusions and evidence by identifying information which supports or discounts a solution to a problem</li> <li>• Draws conclusions consistent with evidence</li> </ul>		18-20
	Problem solving (SC5-WS8). The student has achieved <i>very high competence</i> in terms of: <ul style="list-style-type: none"> <li>• Applying critical thinking to assess strategies suggested as possible solutions to an identified problem</li> <li>• Using cause-and-effect relationships to explain ideas</li> </ul>		
	Communicating information (SC5-WS9). The student has achieved <i>very high competence</i> in terms of: <ul style="list-style-type: none"> <li>• Presenting scientific information in the form of a TED talk style presentation (approx. 4min), constructing evidence-based arguments using scientific language for a general High School audience.</li> <li>• Proposing ideas that demonstrate coherence and logical progression</li> </ul>		
<b>B</b>	Processing and analysing data (SC5-WS7). The student has achieved <i>high competence</i> in terms of: <ul style="list-style-type: none"> <li>• Selecting and extracting relevant information from tables, graphs, texts and audiovisual resources</li> <li>• Critically evaluating information from at least 3 reliable secondary sources (including chosen TED talk) and including a correct reference list as per Appendix B10 of the school diary</li> <li>• Evaluating conclusions and evidence by identifying information which supports or discounts a solution to a problem</li> <li>• Draws conclusions consistent with evidence</li> </ul>		16-17
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<b>C</b>	Processing and analysing data (SC5-WS7). The student has achieved <i>adequate competence</i> in terms of: <ul style="list-style-type: none"> <li>• Selecting and extracting relevant information from tables, graphs, texts and audiovisual resources</li> <li>• Critically evaluating information from at least 3 reliable secondary sources (including chosen TED talk) and including a correct reference list as per Appendix B10 of the school diary</li> <li>• Evaluating conclusions and evidence by identifying information which supports or discounts a solution to a problem</li> <li>• Draws conclusions consistent with evidence</li> </ul>		14-15
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<b>D</b>	Processing and analysing data (SC5-WS7). The student has achieved <i>limited competence</i> in terms of: <ul style="list-style-type: none"> <li>• Selecting and extracting relevant information from tables, graphs, texts and audiovisual resources</li> <li>• Critically evaluating information from at least 3 reliable secondary sources (including chosen TED talk) and including a correct reference list as per Appendix B10 of the school diary</li> <li>• Evaluating conclusions and evidence by identifying information which supports or discounts a solution to a problem</li> <li>• Draws conclusions consistent with evidence</li> </ul>		12-13

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Comments:		