

Virtual Bridge Lessons Bringing STEM to life



1. Label the points of tension (T) and compression (C) on the image of the Sydney Harbour Bridge shown above.

2. INITIAL OBSERVATIONS: Create a list of all the geometric shapes you saw in the Bridge.

3. Highlight all the triangles in the image.

How do the triangular shapes aid in the distribution forces in the design of the Sydney Harbour Bridge?







CORROSION

1. Remember: Iron + oxygen = iron oxide (i.e. rust), the presence of salt speeds up this process. INITIAL OBSERVATIONS: Think about examples of corrosion during your Virtual Bridge Lesson. Describe what you saw.

2. Explain why corrosion happens more on some parts of the Bridge than others.

3. What does Transport NSW (previous knows as Roads Maritime Services) do to try and reduce corrosion on the Sydney Harbour Bridge?

IMPACT OF INNOVATION & TECHNOLOGY

1. You are going to redesign the Bridge - over 100 years after construction. Given the advancement in technology over the last century, what would you do differently and why?

EXPANSION / CONTRACTION

1. Remember - Heat creates more energy, which causes particles to increase their movement to expand and so push one another further apart. INITIAL OBSERVATIONS: Think back to the Virtual Lesson and where an allowance was made for contraction and expansion. Sketch in the box provided one allowance, and briefly explain how it works.

2. Explain in your own words why the Bridge is at its highest point in summer.

3. What are some problems the changing height of the Bridge might cause (if any)?

You saw in the video how the RMS and UTS have developed a robot to proactively monitor hard to reach sections of the Bridge. What are some other ways you could monitor this?