

STEAM EDUCATION WITH DR ODESMA DALRYMPLE, DR JOI SPENCER AND DR PERLA MYERS

TALKING POINTS

COMPREHENSION

1. Can you explain the concept of STEAM literacy? Why is it important?
2. Why is it important to engage students' families and communities in their education?

APPLICATION

3. Can you think of real-life situations exemplified by the game of Inequity Monopoly?
4. How could one of your hobbies or interests form the basis of a STEAM lesson?
5. How could your own community be used as a resource for STEAM education?

ANALYSIS

6. Why do you think it is important to base education around the UN Sustainable Development Goals?
7. Many facilitators at the STEAM Team Academy are former pupils. What impact do you think this has on current pupils?

EVALUATE

8. "Gaining STEAM skills is not about getting a high paying job, but about addressing the world's most challenging dilemmas." To what extent do you agree with this statement?
9. Odesma, Joi and Perla share their childhood experiences. How do you think these experiences have influenced their decision to create the STEAM Team Academy?

MORE RESOURCES

In addition to reading or watching *The Boy Who Harnessed the Wind*, you can watch William's TED talk:

www.ted.com/talks/william_kamkwamba_how_i_harnessed_the_wind?language=en#t-309290

Find out more about the STEAM Team Academy:

www.sandiego.edu/steam/academy/

ACTIVITIES YOU CAN DO AT HOME OR IN THE CLASSROOM

Create your own STEAM learning experiences by trying some of the activities run at the STEAM Team Academy.

• **Play your own game of Inequity Monopoly.** Devise a different set of rules for each player, so that some players are given an advantage, while others are hindered. Part way through your game, all players must revert to the official rules. Continue playing.

- What happens to those who were initially helped by the unfair rules?
- What happens to those who were initially hindered?
- How do all the players feel about their situation?
- How does this game relate to inequities experienced by people within your country and around the world?

Click here for more detailed instructions for Inequity Monopoly provided by Odesma, Perla and Joi:

www.sandiego.edu/steam_equitymonop

• **Read or watch *The Boy Who Harnessed the Wind***, the true story of William Kamkwamba, a Malawian boy whose parents were unable to afford his school fees. William snuck into his school library to read, and there, he found books from which he taught himself physics. Using diagrams in textbooks and materials he found in a scrapyard, he built his own wind turbine and provided electricity for his village.

- Access to education is a fundamental human right. Discuss the consequences when certain groups in society (most commonly girls and/or those living in poverty) are denied this right.
- What qualities enabled William to overcome the situation he was in?
- Design and build your own wind turbine (or waterwheel). Can you power a lightbulb?

• **Design an interdisciplinary STEAM-based lesson series around a visit to your local park.**

- How can you include different subject areas in your lesson series?
- How can you connect these subject areas?
- Potential ideas include: conduct a survey of park users and analyse the data; write a poem or news report about the park; study artwork such as graffiti or sculptures; identify the plants and animals living in the park; calculate the motion of children playing on swings or on a roundabout; examine the architecture of structures in or around the park.