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Searching for scientists

Lesson plan description

Students identify stereotypes of scientists by drawing them or using clip art or photos. They then conduct a web search in teams to find scientists who don't fit the profile and prepare a brief presentation to the class of one non-stereotypical scientist they found. They use the presentations to lead into a class discussion about how stereotyping arises and its effects on groups. The lesson concludes with the students writing a non-stereotypical entry for a 'Scientist' for *Wikipedia*.

Year Levels

Early Adolescence (12-15 years)

Explicit values focus

- Fair Go
- Respect
- Responsibility
- Understanding, Tolerance and Inclusion

Key Learning Areas

- Science
- Technology
- Society and Environment

Lesson plan

Getting started

Students draw a picture of what they think a scientist looks like and then explore clip art for pictures of scientists and prepare a collage on a page and print it off.

Display the pages on the board and then lead a class discussion as to what the stereotype of a scientist is and what groups are excluded.

Make a list of common scientist stereotypes.

Discovering

Discuss with students online search strategies, including:

- search terms they might need to use
- using advanced searches to narrow fields and exclude unwanted results
- authentication of websites.

Students work in pairs to identify key words that could be used to search for information about non-stereotypical scientists. They complete the Pre-search Checklist in the 'Notes for Teachers' section of this activity to refine their search terms.

Students use the terms from their Pre-search checklist to conduct a websearch to identify at least four non-stereotypical scientists. They record the results of their searches in the Websearch Student Record Sheet (in 'Notes for Teachers') and evaluate the suitability of the sites.

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They then choose one scientist and prepare a one-page presentation outlining the following:

- date and place of birth
- an image of the scientist
- early life, education, work experience
- scientific discovery
- the significance of the discovery
- how the discovery affects our daily life
- in what ways the scientist does or does not fit the stereotype.

Bringing it together

Students share the information they found about the scientists then have a group discussion about stereotypes using the following questions for direction:

- What are stereotypes and how do they affect people's lives? Is it fair to have stereotypes?
- Can you think of any events in history that were influenced by stereotypes and biases?
- How do people learn to make stereotypes? How might they unlearn them?
- What responsibility can the media (newspapers, television, movies) take to help reduce stereotyping?
- What do you think an individual can do to help reduce bias and stereotyping and give everyone a fair go? What responsibility can *you* take to reduce stereotyping?
- How have the scientists demonstrated the values covered in this lesson? That is, fair go, respect, responsibility, understanding, tolerance and inclusion?
- What does this information mean for people wanting to become scientists?

Students view the entry for 'Scientist' in *Wikipedia* (http://en.wikipedia.org/wiki/Scientist#Who_are_scientists.3F) and comment on how inclusive this definition is for all scientists, based on their research. Have the students prepare their own entry that demonstrates inclusion of a range of aspects of being a scientist, including an image, which does not present the stereotypical view.

Notes for teachers

Following are a Pre-search checklist and Websearch student record sheet which may be printed out for student use.

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Pre-search checklist

1. What unique words, distinctive names, abbreviations, or acronyms are associated with your topic?
These will help you zero in on relevant pages.

2. What organisations/groups might have information on your subject in their pages?
Search these as a **"phrase in quotes"**, looking for a homepage that might contain links to other pages, journals, discussion groups, or databases on your subject.

3. What other words are likely to be in ANY Web documents on your topic?
You may want to search for these by joining them with **AND** or preceding each by **+[no space]**.

4. Do any of the words in 1, 2, or 3 belong together in a certain order, such as a cliché?
Search these as a **"phrase in quotes"** (eg "mad scientist" or "14th century scientist").

5. For any of the terms in #4, can you think of similar words or spellings or equivalent terms?

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6. Can you think of any extraneous or irrelevant documents these words might pick up?

You may want to allow these terms by joining them by **OR** and including each set of equivalent terms in parentheses **( )**.

You may want to exclude terms or phrases with **-[no space]** before each term, or **AND NOT**.

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Websearch student record sheet

Key word /refined search	Website visited and site owner/author	Useful information	Suitability of website
Scientist	http://www.ziplink.net/~pik/Famous%20Scientists.html – Dr K's Science Education Bookmarks - Famous scientists	Links to other pages about famous scientists but most are stereotypes	★★★☆☆
			☆☆☆☆☆
			☆☆☆☆☆
			☆☆☆☆☆
			☆☆☆☆☆

The University of California Berkley Library tutorial pages at http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/FindInfo.html provide useful hints and checklists for searching on the World Wide Web and for evaluating sites.