A Focus on STEM Careers

Grade(s): 7-9 ***Subject:*** Healthy Living

Time: 60 min class

Curriculum Outcomes:

- 7.12 - Identify relationships between their strength, skills, abilities, and interests and their educational plans.
- 7.13. 8.5, 9.9 - Select items for and maintain a LifeWork Portfolio.
- 8.4 - assess their strengths, skills, abilities, and interests in relation to employability skills.
- 9.9 - develop a plan to acquire the skills and credentials that will lead to their career goals.

Skills:

- Identify gender stereotypes and how they can affect course and career selection.
- Identify various STEM careers and the skills required to be successful/enjoy these careers

Rationale/Purpose:

This lesson is meant to make students aware of the gender stereotypes that exist in certain careers, especially careers in the Science, Technology, Engineering, and Math (STEM) fields. By the end of the lesson, students should be aware that career aptitude depends on skills and interests and not gender or race. Students will also be exposed to many different types of STEM careers.

Lesson Summary Chart:

Time	Instructional strategies	What the teacher will do	What students will do	Ready-to-use support materials *
10 min	Introduction	Ask students to close their eyes, and picture a scientist. Instruct students to draw what they see and to be specific; include location, clothing etc. Collect a few of the drawings and tape them to the board	Draw a scientist Compare drawings with other students	
15 min	Class Discussion	Facilitate class discussion	Listen and provide input	Suggested Questions for Class Discussion

30 min	Activity/Watching Videos	www.WISEatlantic.ca/videos.asp and show the class a few of the role model videos Ask students to choose a STEM career that interests them, have them come up with 10 interview questions they would ask someone with that career if they had the opportunity to interview them. Collect these questions for marking.	Watch videos Create list of 10 interview questions	www.WISEatlantic.ca/videos.asp Transcripts of videos also available in PDF form
5 Min	Exit slip	Hand-out slips of paper to students. Instruct them to reflect and write down one thing they learned from the lesson	Reflect, and write down one thing they learned from the lesson, pass to teacher on way out of classroom.	

Materials:

- Computer, internet
- LCD projector

Assessment Strategies:

- Exit slips

Follow-up activities:

- Have students actually interview someone in the career they chose, using the questions they created in class. Students can create a video or podcast of the interview to share with the class.

Additional Resources:

- WISEatlantic is able to do role model online webinars that take place in your classroom. We organize the role models (you can suggest specific careers you would like to have featured) and on a specified date we will arrange to have your class linked online to listen to role models discuss their careers with your class. Students will also have the opportunity at the end of the webinar to ask (pre-approved) questions of the role models. All the role models are women because we want to break down the existing stereotypes in the STEM fields. These webinars are done through Blackboard Collaborate software, all you need is a computer with a LAN internet connection, speakers, a projector, and a microphone to sign-on.

Suggested Questions for Class Discussion

Follow-up to 'draw a scientist' activity

1. Once the student's pictures of scientists are collected and placed on the board, ask the class questions such as:

    - What is similar about the drawings?
    - What is different?
    - Who is missing from the pictures of scientists? (trying to get females, as well as minority groups)
    - How many of you pictured a male scientist? A Caucasian scientist?
    - Why do you think that is?
    - Ask students what other careers might have gender stereotypes, make a list on the board.
    - Where do you think these stereotypes come from?
    - Do you think your image of a scientist is a reflection of this profession?

2. Discuss with your class why businesses and academic institutions would want to hire all sorts of different people as scientists, how would this benefit the business or research community?

    - Labour shortage solution, especially in STEM jobs.
    - Broader talent base
    - Increased innovation capacity, when the workplace reflects the diversity of the population innovation increases (different perspective, etc.

Incorporating Career Exploration in Science Class

Grade(s): 7-9 ***Subject:*** Science

Time: 50-60 min class

Curriculum Outcomes:

- GCO: Students will develop an understanding of the nature of science and technology, of the relationships between science and technology, and of the social and environmental contexts of science and technology

Skills:

- Identify careers that require science and math courses.
- Explore various STEM careers and learn the advantages of various STEM careers.

Rationale/Purpose:

This lesson aims to teach students that many careers require a good background of science and math knowledge and subjects, that there are a variety of Science, Technology, Engineering, and Math (STEM) careers out there and that they can be creative and collaborative.

Lesson Summary Chart:

Time	Instructional strategies	What the teacher will do	What students will do	Ready-to-use support materials
20 min	Assess student prior knowledge	Hand-out Career Knowledge Worksheet, go over instructions Go through careers with the class, ask them to raise their hands for yes or no	Fill-in Career Knowledge Worksheet Give answers to teacher	Career Knowledge Worksheet (Attached)
10 min	Class Discussion	Go over answers to worksheet with the class Discuss how many they got right/wrong and reasons why they may have gotten some wrong	Volunteer answers to worksheet with the class Discuss	Career Knowledge Worksheet Answers (Attached)

15 min	Watch videos	Bring students to WISEatlantic.ca and show them some videos of careers to explore a variety of STEM careers	Watch videos, take notes.	www.WISEatlantic.ca/videos.asp
10 min	Class Discussion	Ask students to think of a career that is not featured in a video Compile list on the board. Ask students which ones they think are the best Send list of student suggested careers to WISEatlantic!	Suggest careers that are not featured in a video	

Materials:

- Computer, internet
- LCD projector

Important Questions:

- Why do so many careers require science and math courses?
- Is taking science and math subjects in high school important to my future?
- Is taking the most advance math and science you can a good decision?

Follow-up activities:

- Have students pick a career they are interested in and have them research the high school requirements needed to obtain that career or to enter a university/college program that offers training for that career. Have them share their findings with the class in a short presentation or video. Take a poll to see how many require math and science.

Additional Resources:

The following websites are great resources for exploring careers in STEM:

- www.WISEatlantic.ca/resources.asp
- www.Computersciencedegrees.org
- www.careeroptionsmagazine.com
- www.typesofengineeringdegrees.org
- www.careersintrades.ca
- http://www.science.ca/

Career Knowledge Worksheet

Name: _____ Date: _____

Instructions:
Below is a list of careers. Please indicate whether or not you believe the training for the following careers require having taken math and/or science in high school.

Career	Yes	No
Geologist		
Forensic Anthropologist		
Pharmacist		
Dental Hygienist		
Chemical Engineer		
Food Scientist		
Journalist		
Psychologist		
Computer hardware designer		
Meteorologist		
Physiotherapist		
Mechanical engineer		
Teacher		
Embryologist		
Medical technologist		
Veterinarian		
Social worker		
Ophthalmologist		
Registered Nurse		
Computer Animator		
Power Engineering		

Career Knowledge Worksheet - Answers

Name: _____ Date: _____

Instructions:
Below is a list of careers. Please indicate whether or not you believe the training for the following careers require having taken math and/or science in high school.

Career	Yes	No
Geologist	yes	
Forensic Anthropologist	yes	
Pharmacist	yes	
Dental Hygienist	yes	
Chemical Engineer	yes	
Food Scientist	yes	
Journalist		No
Psychologist		No*
Computer hardware designer	yes	
Meteorologist	yes	
Physiotherapist	yes	
Mechanical engineer	yes	
Teacher		No**
Embryologist	yes	
Medical technologist	yes	
Veterinarian	yes	
Social worker		No
Ophthalmologist	yes	
Registered Nurse	yes	
Computer Animator	yes	No
Power Engineering	yes	

*Unless you want to be a science or math teacher!
**Unless you go the BSc of Psychology route, and you do have to take a statistics class to get your degree.