

Pulses and Nutrition



Aims:

To introduce the role of pulses in maintaining a healthy, balanced diet.

Objectives:

- Students will identify examples of pulses produced in Canada
- Students will examine the nutritional profile of pulses and compare to other food products
- Students will apply knowledge of nutrition and Canada's Food Guide to design a menu plan for a specific lifestyle/dietary need

Resources:

1. Canada's Food Guide
2. The Pulse on Pulses infographic
3. Case study, printed for students
4. Access to computers for research
5. Computer and projector OR Smartboard with internet access

Curriculum Connections:

This lesson links to curriculum expectations in a variety of subjects in provinces across Canada. The curriculum links are in grades 7 through 12. Activities within this lesson can be differentiated to meet the varying abilities of students within the class.

ALBERTA

FOD1010: Food Basics: 3.1; 3.2
 FOD1040: Meal Planning 1: 1.1; 1.3
 FOD1080: Food & Nutrition Basics: 1.1; 1.3; 2.1; 3.2
 FOD2130: Vegetarian Cuisine: 2.1; 2.4
 OD2190: Grains, Legumes, Pulses, Nuts & Seeds: 1.2; 3.1; 3.2

SASKATCHEWAN

Food Studies 10,30: Modules 4, 10, 11, 17

MANITOBA

Food and Nutrition Grade 7: 7.2.1.3; 7.2.1.11; 7.2.3.8; 7.2.3.11
 Food and Nutrition Grade 8: 8.2.1.3; 8.2.1.11; 8.2.1.12; 8.2.3.8

ONTARIO

Food and Nutrition - HFN10/20: B1; B2; C1
 Food and Culture - HFC3M/HFC3E: B2
 Nutrition and Health HFA4U/HFA4C: B1; B2
 Health and Physical Activity: Grade 8: C1.1; C2.1



Lesson Plan

Length: 75 minutes (plus one work period if required)



TIME DETAILS

10-15
mins

Introduction

Have students identify the four food groups in Canada's Food Guide. Tell students that in this lesson you are going to focus on the Meat and Alternatives group. Ask students to brainstorm words which come to mind when they think about "Meat and Alternatives." Do any of their words describe 'alternatives'? Discuss examples of alternatives in this category.

Ask if anyone has heard of the term 'pulses'? Provide the definition of a pulse: Pulses are part of the legume family (plants whose fruit is in a pod, e.g. peanut, soybean). Pulses are the dried seeds of the crop. Edible beans, lentils, chickpeas and dried peas are the most common varieties of pulses. Have students identify if any of their words from the brainstorm are a pulse. Students share examples of food they have consumed which includes pulses.

Ask students if pulses grow in Canada? Share the map of pulse growing regions with students: <http://www.pulsecanada.com/canadas-growing-regions>. Is anyone surprised that pulses grow here in Canada? Are pulses a local food option in their region?

Inform students that 2016 is the International Year of the Pulse. Visit www.iyp2016.org to explore the goals and activities of International Year of the Pulse (optional).



*All pulses
are edible
parts of a
plant.*



Lesson Plan (cont'd)



TIME DETAILS

15-20
mins

Health Claims

Direct student's attention to Canada's Food Guide. Discuss the goal of the guide (helps show how much food to consume, what types of food to consume). Ask students what are the benefits of following Canada's Food Guide (meeting needs for nutrients, reducing health risks).

Differentiation: To make the activity easier, provide students with Canada's Food Guide. To make activity harder, have students recall information.

Ask students to think about the Meat & Alternatives food group. What statements have they heard about foods within that group? Think Pair Share: Have students record a health claim or statement they have heard about a Meat & Alternatives food product (e.g. red meat is high in iron; salmon contains Omega 3 fatty acids). Students share with a partner and then discuss as a whole class.

Differentiation: To make activity harder, have students identify a health claim for a specific nutrient (e.g. macronutrient or micronutrient).

TIME DETAILS

Ask students to share any health claims they have heard about pulses. Go over Pulse on Pulses infographic. Discuss the health benefits of consuming pulses. Refer to the "Benefits of Pulses" in the infographic and ask students to identify which group of people (dietary concerns/restrictions) would benefit from the following health claims:

- Pulses can help manage blood sugar levels (people with diabetes)
- Pulses contain about 2x as much protein as whole grain cereals (athletes, vegetarians)
- Beans, peas, lentils and chickpeas are low in fat and saturated fat (people watching their weight)

Have students consider the meat and alternatives food group. What health claims have they heard about foods in that group? How do the health benefits of pulses compare to meat, eggs, fish, nuts, etc.?

Lesson Plan (cont'd)



TIME DETAILS

50 mins
+
work
period if
required

Case Study Activity

Health claims can help people with specific dietary concerns or requirements make choices about their food consumption. Instruct students that they are going to apply their knowledge of nutrition and use Canada's Food Guide to plan a daily menu for someone, incorporating pulses.

Divide the class into small groups or pairs. Hand out the case study document. Students may reference the Pulse on Pulses infographic, Canada's Food Guide, and the websites listed on the case study. Provide access to additional resources to accommodate student needs.

Additional
Learning:

- Have students research, develop and/or prepare specific pulse recipes which would meet the requirements of the case study; Conduct a food lab to make one or several of the pulse recipes
- Students develop a menu plan for a week based on the case study
- Have students develop their own nutritional case study; exchange with other students and complete the activity. Complete a peer evaluation.

Answer Key for Case Study

1. Health Canada, Canada's Food Guide, Dietitians of Canada, Nutritionist, etc.
2. Protein. Protein deficiency.
3. Tofu, pulses (beans, lentils, peas, chickpeas), eggs, peanut butter, nuts and seeds
4. Benefits of pulses could be taken from the infographic or other sources: high in protein, high in fibre, low fat, contain complex carbohydrates, reduce LDL - cholesterol
5. Diet plan should meet requirements outlined.

Case Study

Avery arrived at the arena at 6:50am Saturday morning. The rest of her hockey team was already in the change room. She headed for an empty spot on the bench beside her friend Sarah. Sarah smiled at her and said "You better get dressed fast. Coach has been super strict now that we're in the playoffs."

"I know," replied Avery. "I hit the snooze button too many times. It seems like I have been so tired lately. And I'm exhausted after our practices and games."

"Maybe you're coming down with the flu. There were a bunch of people who missed school last week."

Avery shook her head. "No, I don't think that's it. I don't feel sick to my stomach. Just super tired."

"Whenever I'm tired, my mom always asks me if I'm getting enough sleep. Or if I'm eating enough. But I know you don't want to hear that," joked Sarah. "Maybe it's your new no-meat thing?"

"It's funny you say that," replied Avery. "Last month when I started being a vegetarian I felt awesome and had tons of energy. But now it's almost like no matter how many vegetables or pasta I eat, I'm still hungry and I'm dragging all the time. Do you think that my diet is part of the problem?"

"Could be. I'm not a nutritionist, but I know that it can be hard to balance your diet. My cousin is a vegetarian. He said it took him a while to figure out what to eat to make sure he was getting enough protein and fibre and stuff like that. Maybe you should look up a vegetarian meal plan or something instead of only eating veggies, bread and pasta? Anyway, practice is about to start. See you out there." Sarah grabbed her stick and headed out the door of the change room.

Avery went back to lacing up her skates. Maybe Sarah was right. Was she eating a balanced diet? What could she eat that would help her to increase her energy levels?



QUESTIONS

1. List at least two sources of reliable information that Avery could use to find out about the types and amount of food she should be eating as a vegetarian. /2
 2. Avery is not eating meat and is tired. She may have low levels of which macronutrient? /1
 3. What are 3 meat alternatives which Avery could include in her diet? /3
 4. Name 3 benefits of eating pulses which Avery should know about. /3
 5. Develop a 1 day meal plan for Avery. Make sure it meets the following requirements:
 - Meets the recommendations of Canada's Food Guide /6
 - Includes at least one serving of pulses /1
 - Meets the recommended intake of protein (46g) /2
 - Meets the recommended intake of fibre (25g) /2
- Total: /20

RESOURCES

- Nutrition tables for pulses:
http://pulsecanada.clickonce.ca/site_customs/nutrition/
- Canada's Food Guide: http://www.hc-sc.gc.ca/fn-an/alt_formats/hpfb-dgpsa/pdf/food-guide-aliment/view_eatwell_vue_bienmang-eng.pdf
- Nutritional Benefits of Pulses:
<http://www.pulsecanada.com/food-health/nutritional-benefits>
- International Year of the Pulse – Pulses and Nutrition: <http://iyp2016.org/resources/documents/factsheets/20-factsheet-pulses-and-nutrition/file>