Follow the Hog Farmers

TEACHER GUIDE (Grades 3 - 6)

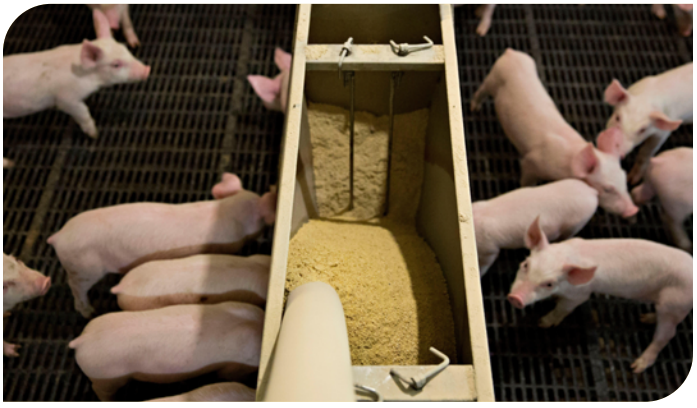
This English Language Arts resource has cross-curricular connections with Science and Social Studies.

It is designed to be a stand-alone resource or a companion resource to the **Follow the Hog Farmers video** and/or **recorded livestream event** featuring Manitoba Hog Producers Andrea Elias and Craig Sawatzky. The videos are available on the **Follow the Farmers Teacher Page** here.

GOALS:

Students will:

- Analyze and evaluate short videos that explore what Manitoba hog farmers are doing to:
  - be good stewards of the environment
  - be good neighbours
  - provide the best care for their pigs
- Discover the technology being used and the research being done to constantly innovate and improve pork production in Manitoba.
- Identify some of the many people and careers involved in producing sustainable, safe, and nutritious pork for Manitobans and people around the world.
- Share their new pig farming knowledge with others.



DID YOU KNOW?

It is estimated that in the last 50 years, the total of all natural resources used by pigs has decreased by about 50% per kilogram of pork.

For every kilogram of pork produced today, farmers emit 35% less GHGs, use about 40% less water, 33% less feed, and as much as 59% less land compared to 50 years ago.

 |

CURRICULUM CONNECTIONS:

ENGLISH LANGUAGE ARTS

GRADE 3 – 6
Engage meaningfully in the four practices of English language arts to foster deeper understanding using topics, issues, and questions that arise in other curriculum areas.
Provide a learning experience with an environmental and technological lens to give students the opportunity to explore the natural and constructed worlds including the land, the sky, animals, technologies, and environmental and technological issues.
Language as Sense Making Learners are demonstrating an understanding that texts are complex • Learners identify main and supporting ideas in texts. • Learners begin to notice and play with language, word choice, structures, visuals, formats, and voice.
Language as System Learners are choosing and using multiple styles of communication for clarity and effect • Learners make decisions about and explain their communication choices (oral, print, visual, multi-modal features).
Language as Exploration and Design Learners are contributing to communities to share knowledge, explore ideas, and deepen thinking • Learners choose to share ideas and personal knowledge with the class and larger audiences in different ways. Learners are blending experiences to represent ideas in different ways • Learners experiment with changing a text from one mode to another (e.g., visual to print). • Learners play with mixing or weaving modes (e.g., blending visual, oral, media, and/or print).
Language as Power and Agency Learners are recognizing the need for validity and reliability • Learners use increasingly different sources to gather and check ideas and information. • Learners begin questioning sources. • With time and guidance, learners discuss qualities of a good source for different purposes. Learners are exploring the decision making of text creators • Learners discuss the purpose and context of authors'/creators' work and notice the decisions made with teachers and others. • With experience and guidance, learners also notice and talk about potential secondary, hidden, or subtle purposes of texts (e.g., advertising, product placement, opinion).

SOCIAL STUDIES

GRADE 3	
3-KL-018	Give examples of the use of natural resources in communities studied.
3-KE-035	Give examples of work, goods, and technologies in communities studied.
3-KE-036	Give examples of how the natural environment influences work, goods, technologies, and trade in communities studied.
GRADE 4	
4-KL-023	Identify issues related to environmental stewardship and sustainability in Manitoba.

SCIENCE

GRADE 3	
3-0-2a	Access information using a variety of sources. Examples: children's magazines, local farmers, CD-ROMs, Internet...
3-1-04	Conduct experiments to determine conditions needed for healthy plant growth. Include: light, water, air, space, warmth, growing medium, nutrients.
3-1-13	Describe ways that plants and animals depend on each other. Examples: plants provide food and shelter for some animals; animals help distribute pollen and seeds.
3-1-15	Identify and describe hobbies and jobs involving plants.
3-4-10	Describe ways to return organic matter to the soil.
GRADE 4	
4-0-2a	Access information using a variety of sources. Examples: school libraries, videos, traditional knowledge, CD-ROMs, Internet...
4-0-4g	Communicate questions, ideas, and intentions, and listen effectively to others during classroom-learning experiences.
4-1-03	Identify the components of an animal habitat. Include: food, water, living space, cover/shelter.
4-1-14	Investigate natural and human-caused changes to habitats and identify resulting effects on plant and animal populations.
GRADE 5	
5-0-2a	Access information using a variety of sources. Examples: libraries, magazines, community resource people, outdoor experiences, videos, CD-ROMS, Internet.
5-0-2c	Record information in own words and reference sources appropriately.
5-0-7g	Communicate methods, results, conclusions, and new knowledge in a variety of ways. Examples: oral, written, multi-media presentations.
5-0-8e	Describe hobbies and careers related to science and technology.
5-0-8g	Describe positive and negative effects of scientific and technological endeavours. Include: effects on themselves, society, the environment, and the economy.
5-4-02	Describe how weather conditions may affect the activities of humans and other animals.
GRADE 6	
6-0-2a	Access information using a variety of sources. Examples: libraries, magazines, community resource people, outdoor experiences, videos, CD-ROMs, Internet...
6-0-7g	Communicate methods, results, conclusions, and new knowledge in a variety of ways. Examples: oral, written, multimedia presentations...
6-0-8e	Describe hobbies and careers related to science and technology.
6-0-8g	Describe positive and negative effects of scientific and technological endeavours.

BACKGROUND INFORMATION:

The Manitoba pork industry works hard to be sustainable.

ECONOMICALLY:

The hog sector is responsible for over 14,000 jobs across the province. This sector employs swine technicians, construction workers, electricians, veterinarians, food production workers, transport drivers, and many other quality professions.

At a Glance

- Exporting to about two dozen countries, Manitoba is the second-largest exporter of pork in Canada.
- 14,000 Manitobans, in Winnipeg and rural Manitoba, depend on the hog sector to make their living.
- The sector contributes over $1.7 billion to the provincial economy annually.
- Over the next decade, about $2 billion will be invested by Manitoba hog farmers and meat processing companies.
- Pork is one of Manitoba's top exports and is recognized as a world-class product.

ENVIRONMENTALLY:

Over the past five decades, significant progress has been made to further reduce the environmental impact of hog farming and Manitoba farmers follow some of the strictest environmental regulations in North America.

At a Glance

- Carbon footprint international benchmark shows Canadian pork has the third-lowest CO^2 per kilogram in the world.
- Injectable hog manure is used as a high value, organic fertilizer by grain farmers.
- To eliminate run-off into waterways, manure is injected directly into the soil where the plant roots can absorb the nutrients.
- New technologies are greatly reducing odour from hog operations.

SOCIALLY:

Manitoba pork producers are proud to provide consumers at home and abroad with some of the best tasting and highest quality pork in the world. The sector is focused on making a positive contribution to our communities, and to the lives of Manitobans, and a meaningful social impact by supporting sustainable food security.

At a Glance

- Manitoba is a world leader in producing healthy, safe, nutritious, and affordable pork.
- All retailed Canadian pork is raised without added growth hormones.
- Pork is a complete, high-quality protein and a good source of 12 essential vitamins and minerals.
- Our sector is one of the few that continues to help rural communities, such as Brandon, Neepawa, Roblin, Killarney, and Notre Dame de Lourdes, flourish.
- Hog farmers are important and significant contributors to the rural communities in which they live.
- Every year, Manitoba pork producers donate more than two tonnes of pork products to those in need.

DID YOU KNOW?

Pork is a Powerhouse of Nutrition!

- Excellent source of **protein**, pork contains all nine essential amino acids
- High in **vitamins**, including important **B** vitamins like **B1** (thiamin), **B2** (riboflavin), **B6** (pyridoxine), and **B12** (cobalamin)
- High in **minerals**, especially **selenium**, as well as **iron**, **magnesium**, and **phosphorus**.

Learn more here.

EXPLORING SUSTAINABILITY IN THE MANITOBA PORK INDUSTRY: A CLASSROOM RESOURCE

MATERIALS NEEDED:

1. The following 5 short, 2 minute, YouTube **videos**:
   - Environmental Stewardship
   - GPS Technology on the Farm
   - Give Me Shelter
   - The Nutrient Cycle
   - Barn Life

Also available at:
https://www.manitobapork.com/educational-videos

2. **Video Analysis Sheet** – 1 per student or group of students
3. **Share the Knowledge Worksheet** – 1 per student or group of students

EXTENSION MATERIALS/ BACKGROUND INFORMATION:

Foundations of Manitoba Agriculture:

- Pork (Long form, short form, articulate versions)

snapAG sheets from *AITC Canada*:

- Pig Housing

Manitoba Pork:

- How Pigs Are Raised

SUGGESTIONS FOR DELIVERY:

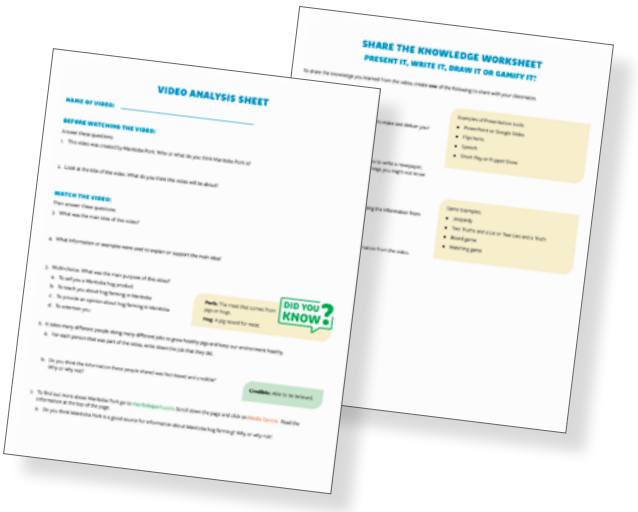
1. Individual students, pairs, or groups of students could each be assigned a different **video**.
   - They work through the **Video Analysis Sheet** for that video.
   - Then using the **Share the Knowledge Worksheet**, they develop the presentation (present it, write it, draw it, or gamify it) of their choice and use it to share what they have learned with either another student, pair of students, student group or class.

OR

2. This activity works well as a Jigsaw activity.
   - Each home group will be a group of 5 students.
   - Students will reform into numbered specialty groups 1 - 5. Each specialty group will focus on a different **video** and use the **Video Analysis Sheet** to review the video and the **Share the Knowledge Worksheet**, to develop a presentation of their choice.
   - Then students will return to their home group to present what they have learned.

AND

3. To help students critically think about sources and the need for validity and reliability, as well as explore the decision-making of text creators, have a class discussion about their answers to questions 5, 6 & 7 on the **Video Analysis Sheet**.
   - Explore students' thoughts concerning the purpose of the video and the knowledge, and credibility of the people featured in the video as well as the video's sponsor.



SUMMARY OF VIDEO CONTENT

ENVIRONMENTAL STEWARDSHIP VIDEO:

Main idea:

- Farmers look after the environment.

Supporting ideas:

- Farmers have decreased their environmental footprint over the last 50 years.
- For every kg of pork produced, farmers use 40% less water, 33% less feed, 50% less land and produce far fewer carbon emissions.
- Farmers work with trained professionals when making environmental impact decisions.

Featured careers:

- Hog Farmer
- Professional Agrologist
- Professional Engineer & Agronomist
- Certified Professional Agronomist
- Professional Environmental Engineer

GPS TECHNOLOGY ON THE FARM VIDEO:

Main idea:

- GPS is an important technology that helps farmers reduce their environmental footprint.

Supporting ideas:

- All plants need nutrients, but MB soils lack nutrients.
- Hog manure can be used as fertilizer.
- GPS allows for better placement of manure on land.
- GPS is good for the environment because it reduces nutrient runoff into waterways or gases into the atmosphere by allowing farmers to apply:
    1. The right kind of fertilizer
    2. At the right rate
    3. In the right place
    4. At the right time
- GPS has reduced fuel consumption and farmers carbon footprint.

Featured careers:

- Professional Agrologist
- Director of Environmental Affairs
- Hog Farmer

GIVE ME SHELTER VIDEO:

Main idea:

- Shelterbelts on farms provide many advantages.

Supporting ideas:

- Shelterbelts:
    - Improve air quality
    - Shelter buildings from strong winds
    - Reduce smell
    - Beautify the land
    - Reduce snow build up
    - Create privacy from neighbours
    - Reduce energy costs
    - Create a nicer environment to live and work in
    - Preserve wildlife habitat
- Shelterbelts consist of several rows of staggered dense shrubs and a variety of taller trees.

SUMMARY OF VIDEO CONTENT CONT'D

- Shelterbelts are like the lungs of the farm. They:
  - Absorb and break up odour
  - Trap dust
  - Take CO_2 from the air and release O_2. This helps reduce GHGs
- Other tools are also used for reducing odour:
  - Frequently washing the inside of the barn
  - Covering manure storage lagoons
  - Working manure into the soil
  - Research into reducing odour of manure

Featured careers:

- Hog Farmer
- Professor, Department of Biosystems Engineering

THE NUTRIENT CYCLE VIDEO:

Main idea:

- Pig poop isn't waste, it's an important part of the nutrient cycle.

Supporting ideas:

- Plants not only need sunlight, water, and CO_2 they need nutrients which often come from fertilizer.
- Hog manure is:
  - an organic fertilizer and soil conditioner
  - rich in N, P, K nutrients
- Nutrient Cycle works like this:
  - farmers feed pigs grain
  - pigs eat the grain and then poop
  - the manure (poop) is collected in pits below the barn then moved to outdoor storage structures
  - when weather and soil is right the manure is tested for nutrient content
  - the manure is injected into fields lacking nutrients
  - manure helps to grow crops used to feed pigs
  - cycle starts again
- Replacing nutrients with fertilizer or manure is an essential part of any food system.

Featured careers:

- Hog Farmer
- Professor of Soil Science

BARN LIFE VIDEO:

Main idea:

- Farmers raise pigs in barns to help keep their pigs healthy.

Supporting ideas:

- Pigs can get sunburns and insect bites.
- Pigs can get injured or sick if they are not protected from wildlife and diseases.
- Raising pigs in barns lets farmers watch their animals and make sure they are healthy and thriving.
- Barns protect pigs from bad weather, pests, predators, and disease.
- Barns provide pigs with shelter and a healthy, comfortable, safe environment.

Featured careers:

- Hog farmer