



Program Guide for facilitators



Acknowledgements

For the support of the national development of the Elementary School Programs we gratefully acknowledge the generous financial support from the following sponsors:

- Imperial Oil Charitable Foundation
- Lotte & John Hecht Memorial Foundation
- The John Dobson Foundation
- Canadian Business Hall of Fame Foundation

We also wish to thank the many individuals who contributed to the development of this program **Our Country: Technology and Innovation** – designed for Grade Four students.

National Programs Committee, Junior Achievement of Canada

Junior Achievement of Canada

Jennifer James, VP Programs & Charter Services
Andre Gallant, Senior Director, Programs & Technology
Polestar Communications Inc.

Graphic Design, Illustration

Juni Xu

Cover Design

Avi Studio

The text of this publication, or any part thereof, may not be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, storage in an information retrieval system, or otherwise.

Program Revisions 2016
© 2021 JA Canada



Table Of Contents

04

INTRODUCTION

- Teacher's Role
- Business Volunteer's Role
- Evaluation

06

PREPARING FOR THE CLASS

- | | | |
|-----------------------------|-------------------------------|-----------------------------|
| Working with Young Children | Classroom Management | The Final Class/Recognition |
| Setting the Stage | Developing Classroom Presence | |
| Getting Ready | Teaching Tips | |

10

LESSON 1: TRADITIONAL AND MODERN TECHNOLOGIES

- | | | |
|------------------------------|-------------------------------|---------------------------|
| Presentation | iii) Traditional Technologies | vi) Review and Conclusion |
| i) Introduction | iv) Definitions | Teacher Follow-up |
| ii) Learn About the Students | v) Technology and Innovation | |

14

LESSON 2: TECHNOLOGY IN CANADA

- | | |
|-------------------------|-----------------------------|
| Presentation | iii) Progress in Technology |
| i) Review | iv) Review and Conclusion |
| ii) Canadian Technology | Teacher Follow-up |

18

LESSON 3: MODERN TECHNOLOGIES

- | | | |
|----------------------------|-------------------------------------|---------------------------|
| Presentation | iii) Technology Auction | Canada |
| i) Review | iv) Students' Use of New Technology | vi) Review and Conclusion |
| ii) Technological Advances | v) New Technology Changes | Teacher Follow-up |

22

LESSON 4: FUTURE TECHNOLOGIES

- | | | |
|-------------------------|---------------------------|----------------------|
| Presentation | iii) Innovation Challenge | Teacher Follow-up |
| i) Review | iv) Innovation Meter | Follow-up/Evaluation |
| ii) A Day in the Future | v) Review and Conclusion | |

27

TEACHER FOLLOW-UP ACTIVITIES

(For quick reference)



Introduction

We have tried to make things easy by including symbols to help you find your way through this program guide. Watch for:

TIPS Tips for Volunteers



Term Definitions



Time Allocated per Activity



Figure Representation of Kit Material

Business volunteers trained by Junior Achievement deliver the Our Country program in cooperation with the classroom teacher. Through discussions and class activities appropriate to the grade level the basic elements of technology in business are introduced and related to their underlying economic principles. The classroom lessons have been structured to explore the topics as well as reinforce the learning of skills that are inherent to the elementary grade curricula in Canada.

The goals of the OUR COUNTRY: TECHNOLOGY AND INNOVATION:

- To explain the movement from traditional to modern technologies and review the impact this progress has had on business and society
- To identify Canadian inventors and inventions and their contributions to Canadian and international business
- To describe changes in Agriculture, Communication and Manufacturing sectors in Canada resulting from technological innovations
- To create future technologies to meet current needs and evaluate their usefulness

example, you can help ensure that there is a strong reader in each student group to help students with weaker reading skills. Try to meet with your volunteer between classes and share what you know. Volunteers will find your tips on sensation skills and classroom management routines very helpful.

This guide outlines the material your volunteer will present. We ask that you, as the cooperating teacher, review the lesson plans and the supplementary Follow-up Activities so that you can help the volunteer tailor each presentation to better meet the needs of your students. We also hope you will try to reinforce the information introduced in each topic and integrate it with your curriculum and cross-curricular lessons. Your use of the Follow-up Activities will contribute to the overall success of the program. For your convenience, the Follow-up Activities appear in a separate section at the end of this guide.

TEACHER'S ROLE

To the Teacher

Each year thousands of students across Canada participate in the Our Country program. This program has been designed to be integrated into your provincial curriculum and to help you meet educational outcomes and objectives. Junior Achievement staff in your community is eager to assist you in ensuring the success of Our Country in your classroom.

You are an important resource in this learning experience. Your involvement in this program and support of the volunteer in your classroom are critical elements in each program presentation. We know you will be responsible for classroom discipline and hope you will work closely with your volunteer in general classroom management.

Your teaching experience and the knowledge of your own students are valuable assets. For





Introduction



BUSINESS VOLUNTEER'S ROLE

To the Business Volunteer

Your association with Junior Achievement, your presentation skills and your participation in an Our Country training session have prepared you to be an ambassador for Junior Achievement during your Our Country presentations.

Your role, as presenter of the Our Country material, is essential to the program's success. You will be asked to provide information on each topic, direct class discussions and involve students in class activities.

There are many resources at your disposal. Your experience in the business community will have given you a great deal of background information that you should use to highlight the concepts covered in each lesson. The Our Country material has been designed to encourage the students to participate. The teacher will also provide you with helpful hints on technique and style. Junior Achievement staff are available to answer any questions that you may have. You have the resources to offer an exciting and informative learning opportunity. Enjoy the experience!

We are certain you will find Our Country - Technology and Innovation challenging, rewarding and enjoyable.

EVALUATION

To Business Volunteers and Teachers

JA Canada needs your help! We have developed a program evaluation and impact assessment system to get stakeholder feedback. We want to hear from our volunteers, teachers and students. We have created satisfaction surveys that we ask you to complete online. The link to the surveys will be given to you by your program manager.

Student Quizzes

JA wants to know how well the students know the materials and the learning covered in the program. You will find two sets of questionnaires in your program kit – one says start or introductory quiz and the other follow-up or end quiz. Please distribute the first set after your introduction and before the first lesson. The second set should be distributed at the end of the program. You will be prompted to distribute these in that section of the Program Guide. Ask students to answer the questions to the best of their ability. Please collect all quizzes, place them in the pre-addressed envelope and return to your local JA Charter office.

Please note that to protect confidentiality, students are asked not to write their name on the questionnaire

Junior Achievement appreciates the commitment you have made to the program's success. We are highly committed to keeping our programs current, informative and enjoyable for all our stakeholders. We greatly appreciate any feedback or comments you would like to share with us.

Please contact your local program manager if you have any suggestions or comments on how to improve this Junior Achievement program.





Preparing for the Class

This section provides you with guidelines for using the program materials.

WORKING WITH YOUNG CHILDREN

- Young students may be shy around a new adult in the classroom. Have the teacher introduce you and spend a few minutes at the beginning of the class chatting with students about their interests and schoolwork in a relaxed and friendly way.
- Young children are most comfortable with predictable routines. Before the class, discuss with the teacher any routines used to keep order, move the class along, etc. Ask the teacher to remain in the room during the lesson, and explain that you will ask for assistance if necessary.
- Repetition is a valuable teaching strategy for young students. Repeat what you have taught students at the end of each class, and again at the beginning of the next class. You may have to repeat parts of a lesson more than once before students catch on.
- Modelling is another key strategy. When introducing a new activity, ask some students who understand the concept to demonstrate it for the class. Don't hesitate to demonstrate an activity yourself if necessary, especially activities that involve unfamiliar activities or thinking processes, like grouping, expressing an idea, raising questions, etc.
- Students in Grades 3 and 4 are only beginning to form the ability to think abstractly and analytically. They may have little experience beyond their own family and school and what they see on television. As much as possible, and especially with students who are learning English as a Second Language, use simple, concrete language and demonstrate things with your hands. Reinforce your words by writing words and drawing charts or making sketches on the chalkboard. You can ask students to describe, list or group objects and take part in physical activities, but they may have difficulty explaining relationships, causes and similar concepts.

SETTING THE STAGE

- Hold a pre-program meeting or telephone call with your teacher between your training session and the first class. Determine class routines regarding discipline and procedures for class changes or dismissal.
- Begin to build a good relationship with your teacher from your first meeting onward. Feel free to ask for his/her advice or comments regularly.
- Keep the name and phone number of your local Junior Achievement contact handy. Refer to that contact for information, advice and solutions to problems.

GETTING READY

- Careful and thorough preparation is the key to the success of your presentation and the solution to most classroom management problems.
- Review materials carefully and give some thought to what you will say during each presentation. Procedures and key information are in regular print.
- Review each activity in advance.
- The time limits for each class segment are guidelines. The times suggested are only approximate. You will need to adjust them to suit the size, temperament and ability of your class.
- Check the "Materials Needed" section to confirm that your kit is complete. Make sure that the teacher is aware of the supplies that students will need.



Preparing for the Class



CLASSROOM MANAGEMENT

- Arrive at least 15 minutes before the session begins. Make sure you finish on time unless you have made previous arrangements to go longer.
- Review with the teacher what you will be covering.
- Have your activity prepared, copies made and props available.
- The teacher may also use a follow-up activity during his/her own class time to review the material that was presented during your lesson. Check with the teacher to find out if a follow-up was conducted and what was covered.
- Vocabulary terms and key points are summarized on a slide, and for easy reference they are also noted in your manual. Display the slide on the projector at the end of each session when you begin the review. Draw the class's attention to vocabulary terms and key points as you proceed through the summary.

DEVELOPING CLASSROOM PRESENCE

- Speak clearly and project your voice.
- Dress appropriately.
- Follow the rules and procedures established by the teacher.
- Know your material.
- Use clear, basic language as much as you can, but do not focus on your wording or worry if you stumble over words in a sentence while speaking.
- Expect to be a little nervous the first few times. It is a normal reaction.
- Enjoy yourself and smile!

TEACHING TIPS

Engaging the students

- Move around the room. Movement will keep you and your audience alert.
- Focus on interacting with the class. Limit your speaking to less than five minutes at a time.
- Use two-way communication to check if students understand the material and to keep them engaged. Allow them to ask questions and to participate. Involve the students in a discussion.
- Ask questions to keep your audience involved and active. Give clues if the students don't respond, but don't give the answer away. Make the class work for it.
- Use familiar language the students are comfortable with. Keep in mind that their vocabulary is not as extensive as yours, so explain all terms. Try to interpret some of their responses. Draw out their ideas.
- Be sure to face the class and talk to the students, even when writing on the chalkboard. Ask the teacher if it is appropriate to have a student volunteer write key words or concepts on the board so that you can continue to address the class.
- Be enthusiastic and friendly, rather than stern.
- Be specific and use examples from your own experience or the experiences of the students. Take time at the beginning to find out a little information about the students and their families that you can use to illustrate discussion points.
- Expect the students to be aware of the world around them, including business and economics. Respect this and talk to them as if you are having a conversation.



Preparing for the Class



- Students can usually tell if someone is trying to hide uncertainty or a lack of knowledge. If you don't know the answer to a question, say so, but try to suggest where they might find the right answer. They will respect your honesty.
- Welcome diverse ideas. Remember there are no wrong answers.
- Use students' names. Learn as many as you can, so that you do not have to look at the table tents. Knowing your students' names will make an impression and show your interest in them.
- Be sensitive to students' different family structures and economic situations. Some students do not live in traditional two-parent families, and parents may not have jobs. Allow students to choose whom they will talk about and how they describe them.

Dealing with Difficult Situations

The best way to manage the class effectively is to have a well-planned, fast-paced lesson. However, if one or two students act out despite your efforts, try the following procedures:

- Make sure you know the classroom rules and procedures the teacher follows. Letting the students know you will be following the same procedures, as the teacher will help you maintain their respect.
- Maintain eye contact. A stern look at a disruptive student is often enough to get the student's attention.
- Ask questions of students who are disruptive. They'll have to stop misbehaving in order to answer your question.
- Stand near students who are inattentive or disruptive.
- Request help from the teacher. Ask the teacher to take students aside if they continue to misbehave after you have asked for their attention or cooperation.

THE FINAL CLASS/RECOGNITION

- In addition to the activities on future technology, the final class will include a graduation session.
- Certificates of Accomplishment have been included in each kit to recognize the participation of the students in the program. Plan to distribute them at the end of the fourth session. You should schedule an extra 10 to 15 minutes to complete the presentation. Complete the certificates in advance. Simply place the students' names and the date of the last session on the certificates.
- Give the certificates to each student with a handshake.
- Discuss any additional recognition activities with the Junior Achievement staff or your teacher.



Preparing for the Class



LESSON 1

TRADITIONAL AND MODERN TECHNOLOGIES

Introduction	 5 MIN
Learn About the Students	 5 MIN
Traditional Technologies	 5 MIN
Definitions	 15 MIN
Technology and Innovation	 15 MIN
Review and Conclusion	 5 MIN

 50 MIN



LESSON 2

TECHNOLOGY IN CANADA

Review	 10 MIN
Canadian Technology	 20 MIN
Progress in Technology	 5 MIN
Review and Conclusion	 5 MIN

 40 MIN



LESSON 3

MODERN TECHNOLOGIES

Review	 5 MIN
Technological Advances	 10 MIN
Technology Auction	 10 MIN
Students' New Technology	 10 MIN
Technology Changes in Canada	 10 MIN
Review and Conclusion	 5 MIN

 50 MIN



LESSON 4

FUTURE TECHNOLOGIES

Review	 5 MIN
A Day in the Future	 10 MIN
Innovation Challenge	 15 MIN
Innovation Meter	 15 MIN
Conclusion and Recognition	 10 MIN

 40 MIN



LESSON 1: Traditional and Modern Technologies

OVERVIEW

In this lesson, introduce yourself and the Junior Achievement program to the students. During the lesson, students will compare Traditional Technologies to Modern Technologies and discuss how innovation has changed our society.

OBJECTIVES

After the lesson, students will be able to:

1. Explain what tools, needs, technology and innovation are;
2. Describe traditional technologies in Canada;
3. Identify needs satisfied by both traditional and modern technologies;
4. Describe the impact of technological innovation on businesses and society.

PREPARATION

1. Review the lesson plan and the materials used in the lesson.
2. When you arrive to present your lesson, ask the teacher to help you prepare the computer and projector for the digital materials, and how to divide the class into groups (five or six groups is ideal) ensuring that each group has at least one strong reader.
3. Discuss with the teacher where and how to arrange the Technology Card collecting stations.
4. Make sure students have markers or crayons for their table tents.

MATERIALS NEEDED

One set of:

- Markers or crayons (Ask the teacher to ensure students will have these.)
- Traditional and Modern Technologies Matching Cards (Figure 1)
- Slide – Traditional and Modern Technologies (Figure 2)

For each student:

- Table tents



Figure 1

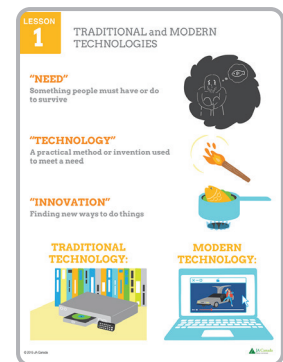


Figure 2

PRESENTATION

i) Introduction



5 minutes

Introduce yourself to the class. Tell the students your name, your current business activities, and some of your interests. Include information such as where you went to elementary school, where you work, and what the class sponsor does.

Explain that Junior Achievement helps young people learn about business by bringing people, like you, from businesses in the community to present lessons in schools.

Explain that:

- This program for Grade 4 is called Our Country: Technology and Innovation.
- You will visit the class four times.
- You and the classroom teacher will work together to present activities that will teach the class about technology and business in Canada.
- The class will do some fun activities, including discussing Canadian inventors and inventions and inventing new things.



Traditional and Modern Technologies 1

ii) Learn About the Students



5 minutes

Distribute the table tents. Ask students to write their first name on the tents in big letters. (Show a sample.)

Tell the students that you would like to know something about them.

- Ask students to raise their hands if they like hearing about or using new inventions. Ask some students to tell you about new inventions that they like, or would like to use.
- Ask students if they have read any stories about things that were invented by Canadians. Have some students tell you about inventions they know of.
- Ask students to raise their hands if they have ever invented something new, or tried to find a way to make something better or easier to do. Have some students tell you about anything they have tried to make better or easier

iii) Traditional Technologies



5 minutes

Point out that traditional tools and technologies have some parallels to the ways that people use tools and technologies today. For example:

- People gathered raw materials (by hunting, fishing, harvesting, trading) and made tools (from wood, stones, bones, natural fibres, animal skins, etc.). People today continue to gather raw materials and make tools, though many of the raw materials and tools are different. E.g.:
- Traditionally, clothes were made from animal skins; today, people make clothes from natural and manufactured fabrics.
- Traditionally, plates and bowls were made from clay or wood; today, people make plates and bowls from glass, metal or plastic.

- Traditionally, goods were produced to meet the needs of society and for trade, the labour specialized based on skills along gender or family lines. Today, people produce goods for society and trade, and specialize along professional or regional lines. For example:
- Traditionally, men did most of the hunting and fishing, while women gathered plants; today, farmers grow crops while other people produce foods and sell them.
- Traditionally, one family would own an area for trapping or gathering food; today, government rules dictate boundaries for fishing, trapping and agriculture.
- Traditionally, tools were invented to meet needs, just as modern businesses develop new technologies to meet modern needs.
- Traditionally, tools such as fishhooks, axes, arrows, baskets, and boats were made from bone, wood and stone; today, people make tools from metal, plastic and other manufactured materials.

iv) Definitions



15 minutes

Write the word “needs” on the chalkboard and ask students to explain what it means.

- Needs are things that people must have or do to survive.
- Has the word “survive” changed over time in terms of what we need today vs. traditionally?

Ask students to list some things that people need to survive and write their suggestions on the chalkboard. Help them identify at least the following categories of needs:

- Food (including things to drink)
- Shelter and Clothing
- Communications
- Tools

TIPS

Learn About the Students

- ➔ You can use the information that you get from students about their activities and interests to make later lessons relevant.
- ➔ Be sensitive to students’ different family and economic situations.
- ➔ Talk to the teacher about specific books the students have read. If possible, bring in some items that represent certain types of inventions – an illustration of an old invention, possibly still in use, and a new invention to help initiate discussion



NEED:

Finding new ways to do things

TECHNOLOGY:

A practical method or invention used to meet a need

INNOVATION:

Finding new ways to do things



1 Traditional and Modern Technologies



Ask the class for examples of how people meet their needs. If necessary, prompt them with questions such as the following:

- What things help us get food? (For example: plates, cups, refrigerators, stoves, bottles, and bowls).
- What things help keep us warm and safe? (For example: Clothes, houses, blankets, heaters)
- What things help us talk and share information with each other? (For example: pens, paper, telephones, computers, televisions)
- What things help us make tools that we can use? (For example: saws, hammers, nails, glue, computers, etc.)

Write the word “technology” on the chalkboard, and ask if anyone can explain what it means.

- Technology means a practical method or invention that is used to meet a need.
- Note that sometimes people use the word “technology” to mean modern inventions, but it also means older inventions.
- For example: knives, spoons, pencils and paintbrushes

Write the word “innovation” on the chalkboard, and ask if anyone can explain what it means.

- Innovation means finding new ways to do things or inventing new tools to meet needs.
- For example: electrical tools, cell phones, vaccinations,

Explain that the rest of the lesson will look at traditional technology and modern innovations.

v) Technology and Innovation



15 minutes

Distribute one set of cards per group. Ask the students to match a traditional technology with a modern technology.

While students are matching the traditional and modern technologies, divide the chalkboard into four sections, and write one of the following titles in each section:

Food

Shelter and Clothing

Communication

Tools

Divide each section in half, and label each section “Traditional” and “Modern” Technologies.

After ten minutes, ask students to give examples of technologies, shown on the cards that fall under the four categories. Have them explain whether their examples are modern or traditional. (If some technologies could be either modern or traditional write them in the traditional section.) Invite students to add examples of other technologies.

When you have several suggestions under each title, point out that both traditional and modern cultures have found ways to meet their most important needs. Point out that people still use traditional technology.

Discuss how technological innovation is a force for change in society by asking questions such as the following:

- What are the differences between modern and traditional technologies?

New technologies use materials that require complex manufacturing processes, such as steel and plastics; they are often mechanized or use an energy source to reduce the demand for human energy; they may be more powerful or efficient than traditional technologies. This may result in a reduction in human resources and increase in capital resources.

- Why did people develop the new technologies?

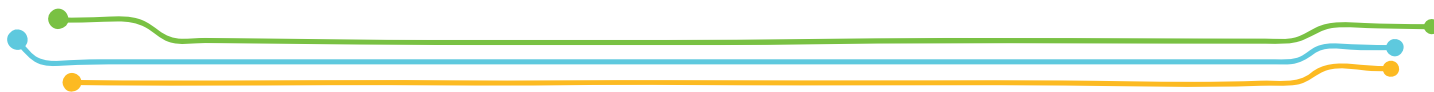
It made it easier for people to meet their day-to-day needs; allowed the producer to sell the technology at a profit; and resulted in increased work efficiencies.

- What effect did inventing new technologies have on people and society?

It gave people more comfort, health and safety; it allowed them to create a higher standard of living and wealth; it reduced the amount of human labour needed to meet basic needs and gain more leisure; it allowed them to create systems for fast travel and communication; Canada exported its ideas of new technology to countries around the world.



Traditional and Modern Technologies 1



- What role did businesses play in the use of new technology?

Businesses hired people to invent, manufacture and sell the new technology to consumers.

- How would your life be different if you did not have modern technologies?

Students would likely live in very small settlements or on farms, would work much harder and get less schooling, would have no electronic games or entertainment, and most would seldom travel more than a few kilometres from their place of birth.

Explain that technology is an important source of change and growth in modern society. The next three classes will examine how modern society and business gains from technology and innovation.

vi) Review and Conclusion



5 minutes

Post the Traditional and Modern Technologies slide and refer to it while wrapping up the lesson. Ask the class if they have discovered anything new about the technologies they use, or that people used in the past. Tell them that they have already learned some important information about technology and innovation:

- Traditional and modern technologies are often different ways of meeting similar needs.
- Modern technology helps people do things they could not do in the past. It allows people to perform tasks more efficiently because it often saves time and money.
- Technological innovation affects the way society and the business economy develops.

Tell the class that in the next lesson you are going to see how technology changed this country, discussing some important Canadian inventions.

Collect the table tents and technology cards and save them for your next visit.

Teacher Follow-up

With the class, brainstorm the positive and negative effects of modern technology. Discuss which have had the most influence on the students' lives. Ask students for examples of technology and explain that, while many people use the term to refer to modern electronic technology, it includes all forms of tools and inventions. Have students list some technologies they use that have been in use for many years.

The best invention ever: Brainstorm with students a list of 10-20 inventions that they think are the best ever. Then have each student choose one of the inventions, and explain to the class why that invention was the best one ever invented. Have students write a diary entry or draw a picture of a young person growing up in an era without modern technology

Technology link: Have students use a word processing program to write a journal entry as an explorer from an advanced future civilization that visits Earth in 2004 and sees the technology that we use as primitive. Encourage them to be creative.

Inventors and Inventions Theme Page:

<http://www.cln.org/themes/inventors.html>

Technology 1900:

<http://pbskids.org/wayback/tech1900/tp.html>

KIDSZONE: Canadian Science and Technology Museum

<http://www.sciencetech.technomuses.ca/english/schoolzone/kidszone.cfm>



LESSON 2: Technology in Canada

TIPS

Canadian Technology

- ➔ Tell the groups they will have to work fast or they won't have time to get all the answers.
- ➔ To keep the activity moving, assign 10 inventions per group, e.g. 1-10, 11-20, 21-30.
- ➔ Take the answers up as a class.
- ➔ NOTE: Some groups will be working on the same inventions.

OVERVIEW

Students will match Canadian inventions to their inventors, and discuss how businesses advanced using new inventions.

OBJECTIVES

After the lesson, students will be able to:

1. Identify Canadian Inventors and their inventions
2. Describe the impact Canadian inventions have had on international business
3. Describe the impact of modern inventions on Canadian society

PREPARATION

1. Review the lesson plan and the materials used in the lesson.
2. When you arrive to present your lesson, ask the teacher to help you prepare the computer and projector for the digital materials, and how to divide the class into groups ensuring that each group has at least one strong reader.

MATERIALS NEEDED

- Slide – Technology in Canada
- Chart paper for each group

For each student:

- Table tents
- Copies of the Canadian Inventors Handout (Figure 1)

PRESENTATION

i) Review



10 minutes

Give the students their name tents, and have them place them where you can see them.

Write the words “technology” and “innovation” on the chalkboard. Remind the class that on your last visit, you talked about what technology and innovation were, and ask if anyone can tell you what technology is. Have the class give some examples of technology used in school, such as video players, calculators, chalk and paper. Then ask if anyone can tell you what innovation is, and have the class give some examples of inventions that are used in schools, such as video recorders, computers, cell phones, gel pens and air-filled running shoes.

Remind the class that in the last lesson, you discussed that Traditional and Modern Technologies were often different ways of meeting similar needs.

Point out that new technologies can have significant impacts on existing societies, both positive and negative. Briefly discuss the ways society is impacted. (Consider the effects of human, natural and capital resources.)

ii) Canadian Technology



20 minutes

Tell the class that Canadians have invented many new technologies that have led to positive changes around the world. Ask the class if anyone can name any Canadian inventions.

Give students the Canadian Inventors handout and have them work in groups to match Canadian inventions with the businesses or individuals that developed them. Encourage the groups to discuss the answers, and to agree on the correct ones.

After ten minutes, call the groups back to order. Read one of the clues, and ask one group what they think is the correct match. See if the rest of the class agrees before giving the correct match.

See page 15 for Canadian Inventors Answers.



Figure 1



Technology in Canada 2

CANADIAN INVENTORS HANDOUT

Match the clues on the left with the correct inventor listed on the right

Descriptions:	Inventions:
13 Screw parts together without slipping	1 Zipper Gideon Sundback, USA, 1913
10 Travel in winter without roads, also used in South America to harvest coffee and during WWII as the technology for transportation through mud	2 Goalie mask Jacques Plante, Fibreglass Canada, Montreal, Quebec, 1959
5 People travel great distances quickly and at low cost	3 Computerized Braille Roland Galarneau, Ottawa, Ontario, 1966
2 Lets hockey goalies play without fear of face injury	4 Wire photo Edward Samuels Rogers, 1925
16 Transmits voices from one location to another without any connection	5 Jetliner James Floyd (chief designer), A.V. Roe Company (Avro), Malton, Ontario, 1949
22 Moving pictures travel through the air	6 Self-propelled combine Thomas Carroll, 1938
11 Lets machines run continuously without burning out	7 Polyethylene garbage bag Harry Wasylyk, Winnipeg, Manitoba, 1950
25 Pushes ships through the water	8 Long-lasting alkaline battery Lew Urry, Pontypool Ontario, 1959
6 Lets farmers harvest fields with a small crew	9 Half-tone photo printing Georges Edouard Desbarats and William Augustus Leggo, Montreal, Quebec, 1869
27 Lets people see after dark	10 Snowmobile Joseph-Armand Bombardier, Bombardier Snowmobile, Valcourt, Québec, 1937
19 Self-contained two-way communicator	11 Automatic train engine lubricator Elijah McCoy, USA, 1872
12 Controls the beat when people have certain heart diseases	12 Heart Pacemaker Dr. John A. Hopps, Toronto, Ontario, 1950
1 Fastens clothes without buttons or snaps	13 Robertson (square slot) screws and screwdriver Peter Robertson, Robertson Screw Company, Milton, Ontario, 1908
30 Helps build and pick up objects in outer space	14 Pabulum Dr. Alan Brown, Dr. T.G.H. Drake, Dr. F.F. Tisdall, Toronto, Ontario, 1930
24 Code used to control many electronic devices, including many cell phones and handhelds	15 Standard Time Zones Sir Sandford Fleming, Ottawa, Ontario, 1878
21 Used to study very tiny objects	16 Two-way wireless voice transmitter (radio) Reginald Fessenden, USA, 1900
7 Helps keep the home and garden tidy	17 Marquis Wheat Sir Charles E. Saunders, Ottawa, Ontario, 1908
28 Controls diabetes, a serious disease	18 The game of Basketball James Naismith, 1891
17 Grows quickly in short prairie summers	19 Walkie-Talkie Donald L. Hings, 1942
4 Transmits photos around the world by telephone or telegraph	20 Telephone Alexander Graham Bell, Brantford, Ontario, 1874
15 Time zones in Canada	21 Electron microscope Eli Franklin Burton, Cecil Hall, James Hillier, Albert Prebus (University of Toronto), Toronto, Ontario, 1937
9 Converts photos so they can be printed in newspaper and magazines	22 Television theory Reginald Fessenden, 1927
29 A lovely red fruit that everyone enjoys in pies, cakes or eaten whole	23 5 - Pin Bowling Tommy Ryan, Toronto, Ontario, 1904
23 A very popular game played by people of all ages in which a ball is thrown down an alley to knock over a set of pins	24 JAVA computer language James Gosling, Sun Microsystems Inc, USA, 1994
3 A computerized method of transferring printed texts to Braille	25 Ships' screw-type propeller John Patch, Yarmouth, Nova Scotia, 1854
20 A technology used to talk to a person in another location	26 IMAX William Chester Shaw (1960s)
18 A famous game played around the world where players try to throw a ball into a "basket"	27 Electric light bulb Henry Woodward, Toronto, Ontario, 1874
14 A baby food for small babies that has vitamins and minerals	28 Insulin Process Fredrick Banting, Charles Best, J.J. Macleod, and James Collip, 1922
26 A six story screen used for movies with over 88 speakers and the name represents "eye" "maximum"	29 McIntosh Apple John McIntosh, Dundas County, Ontario, 1811
8 Lets toys run for hours	30 Canadarm Robotic Space Arm Spar Aerospace/NRC, Toronto, Ontario, 1975

Sources: Google search Canadian inventors; includes references to: The Inventors - Great Ideas in Canadian Enterprise by J.J. Brown; Great Canadian Scientists by Barry Shell; Made in Canada (Ludach Literacy of Canada); Canada Firsts (Ralph Nader, Nadia Mileron and Duff Conacher); The Kids Book of Canadian Firsts by Valerie Wyatt (Kids Can Press, 2001)

© 2015 JA Canada



2 Technology in Canada



Point out that all the inventors were born in Canada or worked in Canada, but they made some of their inventions in other countries. Why were the inventions developed in other countries? Ask the class if they realized how many inventions were developed by Canadians. Point out that by using the ideas of Canadian inventors, many businesses in Canada have become important around the world (and even beyond, into space with technologies such as the Canada arm). In addition, many businesses in other countries have become very successful by making use of Canadian inventions.

iii) Progress in Technology



5 minutes

Point out that the Canadian inventions are just a few of the many new technologies that people have come to use in recent years. Lead a discussion about the changes that new inventions have brought to modern society by asking questions such as the following:

- When you switch from one technology to a newer one, such as from CDs to MP3s or from DVD to streaming video, why did you want to switch? (For example, because of advantages offered by the new technology?)
- Why do people give up old technologies that they know and own for new ones that might be expensive, unfamiliar and unreliable? (New innovations could make their lives easier, let them get more done in less time, give them extra products that they could save, sell or trade, etc.)
- What impact would new and evolving technologies have on business? (They could create new business opportunities such as electricity plants, mines, manufacturing plants for new products, etc. Faster transportation could allow businesses to produce products for export and international trade. They could pay people to move from farms to manufacturing plants in cities. They could use machines to help people work faster and more productively.

Give each group a piece of chart paper and marker and ask the students to illustrate the changes and development that have taken place with an original invention. (For example: crank telephone to dial to party-line to single line to business phones with multi-lines to portable phones to cell phones to web cams.)

- Why has new development been important in technology? For example: the transition from DVDs to streaming video - why was this done? Why was it an important step?
- Television provides another example - black and white to colour; manual controls to remote control; flat screened to multi-screened; standard programming to cable TV and satellite.

What impact do new and emerging technologies have on people's jobs?

iv) Review and Conclusion



5 minutes

Post the Technology in Canada slide and refer to it while reviewing the lesson. Ask the class if they have discovered anything new about the technology in Canada's history. Tell them that they have already learned some important information about technology in Canada:

- Canadians invented important technologies that are used around the world.
- Innovation in technology leads to other changes in society.
- Canadian businesses have made innovative products and sold them around the world.

Tell the class that in the next lesson you are going to look at types of new technology people use in Canada. Invite any students who can to bring to class examples of new technology that did not exist five years ago.

Collect the table tents and save them for your next visit.

Teacher Follow-up

Have students use books in the library to read the stories of Canadian inventors and inventions.

Have students interview older family members and write a summary report on changes they have seen taking place in their workplaces.

Remind students to bring examples of new technology (such as game pads, pagers, FRS radios, etc.) to next class that the presenter will attend.

Technology link: Have students use Internet sites such as the following to research and report to the class on Canadian inventions and technology:

Canada Science and Technology Museum <http://www.science-tech.nmstc.ca/>

CN Gallery of pictures on science and technology <http://webgallery.nmstc.ca/>

Canadian Inventions Gallery <http://www.science-tech.nmstc.ca/english/schoolzone/kidszone2.cfm>





LESSON 3: Modern Technologies

OVERVIEW

In this lesson students will discuss how new technologies displace older ones, and they will conduct a mock auction to establish the value of various types of sound recordings. Students will look at new technologies they use, and examine charts showing the effect of technological changes in Canada.

OBJECTIVES

After the lesson, students will be able to:

1. Explain why new technology displaces old technology and give examples;
2. Demonstrate that newer technology tends to have higher market value than older technology;
3. Give examples of innovative technology that they use; and relate it to the business world i.e. where the item was purchased.
4. Describe changes in Canadian society and business as a result of innovation.

PREPARATION

1. Review the lesson plan and the materials used in the lesson.
2. When you arrive to present your lesson, ask the teacher to help you prepare the computer and projector for the digital materials, and how to divide the class into groups ensuring that each group has at least one strong reader.

MATERIALS NEEDED

- Markers or crayons (Ask the teacher to ensure students will have these.)
- Recording Device Slideshow (Figure 1)
- Slide - Technology and Innovation (Figure 2)
- Slide - Agriculture, Manufacturing and Communications (Figure 3)
- JA Money

For each student:

- Table tents



Figure 1

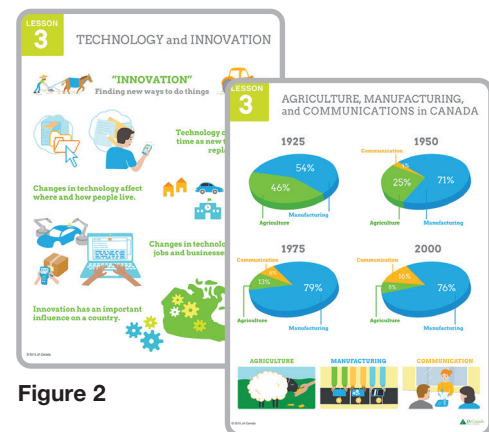


Figure 2

Figure 3

PRESENTATION

i) Review



5 minutes

Give the students their name tents, and have them place them where you can see them.

Remind the class that on your last visit, you talked about early technologies and inventions by Canadian inventors. Have the class give some examples of inventions by Canadians that they use every day (e.g., television, zippers, plastic garbage bags, low-cost light bulbs, two-way radios). Then ask if anyone can tell you what he or she likes most about living with modern inventions.



Modern Technologies 3

ii) Technological Advances



10 minutes

Write the word “Innovation” on the chalkboard, and remind students that it means finding new ways to do things.

Show the class the recording device illustrations of a gramophone, LP recording (vinyl record), 8-track tape, audiotape cassette, CD player and MP3 player. Ask the class what they all have in common, and explain that they are all ways that people have used to record music and other sounds. If necessary, briefly explain what each is.

Ask the class to help you place the devices in order by the time at which they were commonly used, starting with the most recent device, and working back to the oldest.

Ask the class why each device became more popular than the earlier ones. Point out that each has some advantages over the ones it followed (e.g.: hold more music, more compact, more resistant to scratching, etc.). Point out that all had to be manufactured and brought to market by a business that marketed the advantages of the product.

iii) Technology Auction



10 minutes

Ask the class if it is easy for businesses to bring new technologies to market and sell them to people. Point out that manufacturing and selling new technologies is very risky. They may cost many millions of dollars to develop and market, and unexpected costs or market resistance can cause new products to fail.

Ask the class why a business would risk many millions of dollars to market a new product that may not sell. Point out that businesses hope that the advantages of a new product will convince buyers to choose their product rather than the existing products.

Tell the class that you will show how businesses benefit from new products by holding a mock class auction. Explain that in an auction, the auctioneer shows an item for sale, and the buyers bid by calling out the price they are willing to pay for the item. Buyers want to pay as little as possible, so they start with a low price, and only increase it if someone offers a higher price. The person who ends up bidding the highest price purchases the item for sale.

Ask the class to join in the mock auction with the following procedure:

- Give each student \$20 of JA Money to spend. They are to bid for items as if they were offering to buy real items with real money.
- Once students spend their money, it is gone, and cannot be spent again, so students should not bid for something they do not want.
- The auctioneer will show an item and start bidding at \$2. Bids must be \$1 higher than the previous bid, but not more than \$2 higher.
- Students are to raise a hand and call out their bid clearly, but not shout.
- The winning bidder and the price will be written on the chalkboard next to the name of the item.

Show the picture of the gramophone and write “Gramophone” on the board. Or use a real item. Begin the auction at \$2, and take bids until students stop bidding. Write the name of the winner and the price next to the item on the board. If no one bids, write “no sale” next to the item.

Continue with the remaining pictures from oldest to newest, writing the price next to the item. When the auction is complete, have the class compare the prices for each item. Ask the class why some items received higher bids than others. Ask the students who purchased the auctioned items, why they were willing to pay the prices they did.

Point out that the newer technologies usually receive a higher price than older ones, although a variety of factors can change this order. E.g.:

- People may not know about or know how to use the newest technology.
- People may want old items to collect for historical purposes.

TIPS

Technological Advances

- ➔ If you have access to real devices, show them in place of the graphics.



INNOVATION:

Finding new ways to do things

TIPS

Technology Auction

- ➔ If students are unclear about how an auction works, hold a practice round for an item such as a current popular CD.
- ➔ Write key words from the rules on the chalkboard to remind students.

Remind students that they
- ➔ have only \$20 to spend, so they have to spend it carefully.
- ➔ Give each student 2 five-dollar bills, 4 two-dollar bills, and 2 one-dollar bills.



3 Modern Technologies

TIPS

New Technology Changes Canada

- Check with the teacher that students understand how to read pie graphs. If necessary, explain what each graph shows.
- Ensure that students know what Agricultural, Manufacturing and Communications businesses are. Give some examples if needed.

Have students start in 2 groups standing at the front of the class. As you describe what happened over the past 100 years, have students move into another category group. For example, some move from Agriculture to Manufacturing, and so on. This provides a visual illustration of what happened.



AGRICULTURE:

Farming; the growing/raising of crops and livestock

COMMUNICATION:

A giving or exchanging of information by talking or writing

MANUFACTURING:

To make something by hand or machine; to make something useful

iv) Students' Use of New Technology



10 minutes

Ask the class to describe some new technologies that they or members of their families use regularly in class or at home. If necessary, prompt students with questions such as the following:

- What entertainment devices do you use that use new technologies? (E.g.: on-line games, 4K television, streaming video, MP3 players)
- What kinds of communication devices do you use that use new technology? (E.g.: cell phones, instant messaging, video chat devices)
- What kinds of kitchen or household tools do your parents use that use new technology? (E.g.: appliances controlled with microchips, thermostats and air conditioners systems with microchip controllers, vehicles with digital controls)

Invite any students who have brought an example to school to demonstrate or show the class an item of new technology that did not exist five years ago. Ask the students what they use the technology for and what would be different in their lives without it. Ask other students in the class if they think they could use the device in their own lives.

Identify the business that sells the item, and explain that when people buy the product, the business can sell it profitably and the business will be successful. This will lead to more/new jobs.

v) New Technology Changes Canada



10 minutes

Point out that new technology has made major changes in the way that people in Canada live. Show the slide titled "Agriculture, Manufacturing and Communications in Canada," and explain that the graphs show some ways that Canada has changed over the past 100 years. The definitions of agriculture, manufacturing, communications are as follows:

AGRICULTURE: farming; the growing/raising of crops and livestock

COMMUNICATION: a giving or exchanging of information by talking or writing

MANUFACTURING: to make something by hand or machine; to make something useful

Ask the class to interpret the graphs. If necessary, prompt students with questions such as the following:

- What happens to Agriculture between 1925 and 2000? (It falls from 46 per cent to 8 per cent of the graph.) Why? [Note: The graph does not represent per cent of total domestic industry, but only percentages relative to the other components of the graph.]
- What happens to manufacturing businesses between 1925 and 2000? (They rise from 54 per cent to 79 per cent of the graph in 1975, and fall slightly to 76 per cent in 2000.) Why? Could it be technology?
- What happens to Communication businesses between 1925 and 2000? (They grow from 0 per cent to 16 per cent of the graph.) Why?
- Which businesses grow the most? (Manufacturing businesses grow 25 percentage points, but Communication businesses grow by more than 16 times.)
- What do the graphs show about technological innovations in Canada? (Growing new businesses such as Communications are becoming more significant than traditional businesses such as Agriculture. While all are growing, and manufacturing businesses has grown very rapidly, Communications businesses are now growing even faster.) What are the impacts of a decrease in agriculture on Canadians?



Modern Technologies 3

vi) Review and Conclusion



5 minutes

Post the Technology and Innovation slide and refer to it in the following summary. Ask the class if they have discovered anything new about technology in Canada's history. Tell them that they have already learned some important information about technology in Canada:

- Technology changes over time as new technologies replace old ones.
- Changes in technology affect where and how people live.
- Changes in technology affect the jobs and businesses that people work in.
- Innovation has an important influence on a country.

Tell the class that in the next lesson you are going to look at new inventions and what young people might see in the future.

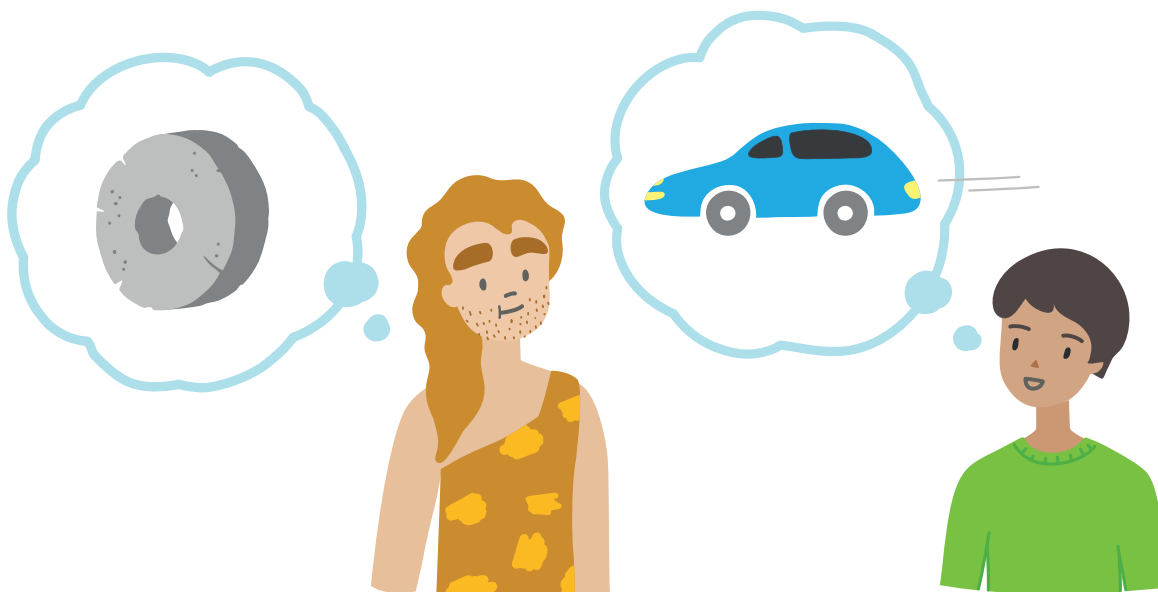
Collect the table tents and save them for your next visit.

Teacher Follow-up

Have the students research and present a newscast announcing a new technology that has been released recently, including the benefits of the new technology and the business that is marketing it. Have them record their newscasts using video or audio recording equipment and present their newscast to the class.

Technology link: Have students ask parents or other family members what jobs they do, and what jobs their grandparents do (or did), and report back to the class. Then have the class use a spreadsheet or graphing program such as Excel to make a pie chart comparing the types of jobs that their parents do and the jobs that their grandparents do (or did).

Have students bring to class examples of changes in technology, such as a fountain pen, a ballpoint pen and a gel pen, or a film camera, a Polaroid camera and a digital camera, and use a video recorder, presentation software or a hypertext program to make a presentation comparing the features of the changes in the technology.



LESSON 4: Future Technologies

OVERVIEW

In this lesson students will discuss a story about technological change in the lives of young students in the future. They will work in groups to invent new technologies to meet given needs, then describe and discuss their inventions and evaluate them on an “Innovation Meter.” You will conclude the class visit by giving each student a Certificate of Accomplishment for participation in the program.

OBJECTIVES

After the lesson, students will be able to:

1. Describe possible future technologies. Discuss how these technologies would, or would not, change their lives;
2. Create innovative responses to given needs;
3. Evaluate the usefulness and innovativeness of imaginary technologies;
4. Describe the marketability of imaginary technologies.

PREPARATION

1. Review the lesson plan and the materials used in the lesson.
2. When you arrive to present your lesson, ask the teacher to help you prepare the computer and projector for the digital materials, and how to divide the class into groups, ensuring that each group has at least one strong reader.
3. Sign and date the Students’ Certificates of Achievement.

MATERIALS NEEDED

- Innovation Challenge Cards (Figure 1)
- Slide - Future Technologies (Figure 2)

For each student:

- Table tents
- “A Day in the Future” Slideshow

- Signed Certificates of Achievement

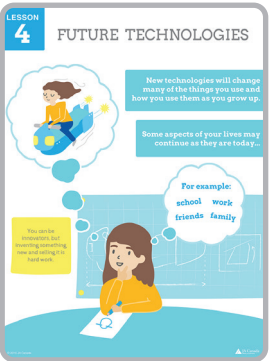


Figure 2

PRESENTATION

i) Review



5 minutes

Give the students their name tents, and have them place them where you can see them.

Remind the class that on your last visit, you talked about innovations in technology, and how they have changed people’s lives and businesses in Canada. Have the class give examples of new technologies that they use (e.g., cell phones, streaming movies and music, MP3 players, etc.). Then ask if anyone can tell you ways that new technologies have changed Canada (e.g.: growth in communications businesses, relative decline in agricultural and resource businesses).

Tell the class that during today’s lesson, they will have a chance to be creative and think of their own innovations for Canadian businesses based on specific needs.

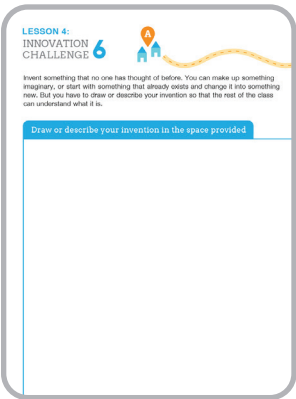


Figure 1



Future Technologies 4

ii) A Day in the Future



10 minutes

Tell the class that you will read them a short story about the future, and their role is to follow along and try to imagine what you describe as if it were a movie or comic book that they can see inside their heads. Read the following story:
(Ask the teacher if this should be done in a circle.)
See the A Day in the Future slideshow.

Lead a discussion on the story by asking questions such as the following:

- When do you think the story takes place? (E.g.: In the present, in the near future, in the distant future?)
- What, in the story, is similar to a day in your life? (E.g.: Kids still have to get up and go to school, do homework, save their money, etc. People still work at jobs, etc.)
- What, in the story, is different from a day in your life today? (Appliances and gadgets like the talking alarm clock, bread maker with toaster, automatic school bus, messenger, air-bike, etc.; more forms of inter-connected communication at home, at school and among friends, etc.)
- What are the new devices in the story? Why do you think they were invented? What need did these devices satisfy?
- What could you tell about business and work in the story? (Jan and Dan's mother works in a downtown office with programmers in an assembly plant in China; Peter's father works in a home office and uses satellite technology to repair shovel-robots, remotely, in an under-sea mine.)
- Do you think you will ever see technology like that in the story? What would the society be like if you did?

iii) Innovation Challenge



15 minutes

Tell students that they will have a chance to invent their own future devices. Remind them that the most useful inventions are the ones that help people meet their needs.

Ask the students if they have any inventions they have made? Ask the students to describe the invention, what need it satisfies, how much it would sell for and its impact on society?

Divide the class into groups and give each group an Innovation Challenge Card. Tell the groups that their job is to invent a device to meet the need that the Challenge Card describes. Students must name and draw their invention in 10 minutes, and then present their idea to the class. Remind them to keep their drawings and descriptions short and general. As the groups work, circulate among the students and offer any help they need to get started.

iv) Innovation Meter



15 minutes

While the groups are working, draw a vertical line in the centre of the chalkboard, and divide it into five sections from bottom to top. Label the sections from 1 at the bottom to 5 at the top.

After five minutes, have the groups come back together and re-focus. Point out the line on the board, write the words "Innovation Meter" above it, and explain that the class will use it to compare the groups' inventions.

Ask each group to read the Challenge card to the class, describe the invention, answer questions from other groups and describe the impact on businesses.

Refer to the Innovation Meter and explain that the right side of the Meter will show creativity. Ask the class to rank each innovation (5 is very creative and 1 is not as creative) Ask students to explain their

TIPS

A Day in the Future

- ➔ Check with the classroom teacher to see if he or she has any procedures to for story reading. If the class is restless, have students sketch part of the story as you read.

Innovation Challenge

- ➔ If some groups seem stuck with their challenge card, offer them a different card to work on or allow them to make up their own problem

Innovation Meter

- ➔ If aspects of the inventions are not clear, point out that it is normal to take several years to work out all the details in a new invention.
- ➔ Praise at least one aspect of each idea, and assign positions on the Meter generously.
- ➔ If students are very competitive about the positions on the Innovation Meter, point out that it only shows the position at one time, and that all the ideas could rate highly with more development.



4 Future Technologies



rankings and assign it a position on the Meter.

The left side of the Innovation Meter illustrates the usefulness of the invention. Ask the class to rank the usefulness of each innovation (TOP if it is very practical and LOWER if it is less practical. Ask students to explain their rankings and assign it a position on the Meter. The Innovation Meter will look like the illustration.

Point out that innovative ideas may be in different positions on the left and right sides of the Innovation Meter. They may be new, but not practical, or useful but not very new. Explain that the best ideas are both new and practical.

Discuss how businesses might be able to use the groups' ideas (or already are using similar ideas) to bring new products to market. Point out that new ideas are valuable and important for Canadian businesses to sell their products around the world.

Ask students which ideas they would be willing to pay for if they were available for sale. Point out that new innovations have a marketable value to people, and when enough people use them, they can change people's lives.

what they have learned:

- Technology and innovation have changed businesses in Canada
- Innovation is how people find new technology to meet needs.
- New technologies invented by Canadians are changing people's lives around the world.
- Students' lives will change in the future as technology changes.

Follow-up/Quiz

As a final activity ask students to fill-out the program end/follow-up quiz.

Don't forget to collect the quizzes, place in the pre-addressed envelope and return them to the JA charter staff.

Give students the Certificates of Accomplishment and thank them for being part of the program.

v) Review and Conclusion



10 minutes

Post the Future Technologies slide and refer to it in the following summary. Ask the class if they enjoyed being inventors and innovators. What were some of the challenges? Tell the students that they have already learned some important information about being innovators in Canada:

- New technologies will change many of the things you use and how you use them as you grow up.
- Some aspects of your lives will continue as they are today. For example: School, work, friends and family
- You can be innovators, but inventing something new and selling it is hard work.

Tell the class that this is your last visit to the school. Remind them that they have learned a lot about technology and innovation in Canada. Summarize



Teacher Follow-Up Activities



LESSON 1

With the class, brainstorm the positive and negative effects of modern technology. Discuss which have had the most influence on the students' lives. Ask students for examples of technology and explain that, while many people use the term to refer to modern electronic technology, it includes all forms of tools and inventions. Have students list some technologies they use that have been in use for many years.

The best invention ever: Brainstorm with students a list of 10-20 inventions that they think are the best ever. Then have each student choose one of the inventions, and explain to the class why that invention was the best one ever invented.

Have students write a diary entry or draw a picture of a young person growing up in an era without modern technology.

Technology link: Have students use a word processing program to write a journal entry as an explorer from an advanced future civilization that visits Earth in 2004 and sees the technology that we use as primitive. Encourage them to be creative.

Inventors and Inventions Theme Page:

<http://www.cln.org/themes/inventors.html>

Technology 1900:

<http://pbskids.org/wayback/tech1900/tp.html>

KIDSZONE: Canadian Science and Technology Museum

<http://www.sciencetech.technomuses.ca/english/schoolzone/kidszone.cfm>

LESSON 2

Have students use books in the library to read the stories of Canadian inventors and inventions.

Have students interview older family members and write a summary report on changes they have seen taking place in their workplaces.

Remind students to bring examples of new technology (such as game pads, pagers, FRS radios, etc.) to next class that the presenter will attend.

Technology link: Have students use Internet sites such as the following to research and report to the class on Canadian inventions and technology:

Canada science and technology museum
<http://www.science-tech.nmstc.ca/>

CN gallery of pictures on science and technology <http://webgallery.nmstc.ca/>

Canadian inventions gallery <http://www.science-tech.nmstc.ca/english/schoolzone/kidszone2.cfm>

... as Excel to make a pie chart comparing the types of jobs that their parents do and the jobs that their grandparents do (or did).

Have students bring to class examples of changes in technology, such as a fountain pen, a ballpoint pen and a gel pen, or a film camera, a Polaroid camera and a digital camera, and use a video recorder, presentation software or a hypertext program to make a presentation comparing the features of the changes in the technology.

LESSON 4

After the Junior Achievement Volunteer has finished the lessons, have students write a letter to the consultant stating three or more things they learned and thanking the Volunteer. Review the letters to ensure that students can describe their learning about technology and innovation in our country.

Have students re-read the story, "A Day in the Future," and draw their favourite part, or add to the story in the form of a comic book with dialogue.

Have students write a report as if it were a proposal to a manufacturing business outlining their new invention and giving reasons why the business should help them create their product for market.

Technology link: Have students develop an advertisement for one of the products they invented, highlighting its new features and benefits. Have them produce their advertisement using graphics software or audio/video recording equipment.

LESSON 3

Have the students research and present a newscast announcing a new technology that has been released recently, including the benefits of the new technology and the business that is marketing it. Have them record their newscasts using video or audio recording equipment and present their newscast to the class.

Technology link: Have students ask parents or other family members what jobs they do, and what jobs their grandparents do (or did), and report back to the class. Then have the class use a spreadsheet or graphing program such



Classroom Materials

Junior Achievement's Our Country: Technology and Innovation program kit contains the following items:



Program Guide

(x 2)



Innovation Challenge Sheets

(1 set x 11)



Traditional/Modern Technology Matching Cards

(6 sets x 42)



Table Tents

(x 30)



Canadian Inventors Handout

(x 10)



Certificates of Accomplishment

(x 30)



JA Money

1 Dollar x 60

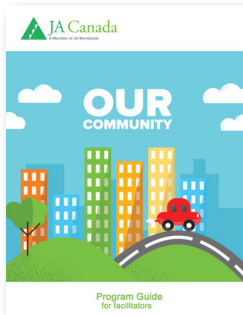
2 Dollars x 120

5 Dollars x 60

Additional Programs

ELEMENTARY

*in both official languages



**Our Community:
Needs, Jobs, Tools**



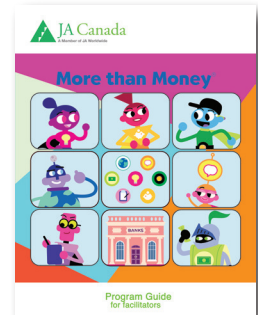
A Business of Our Own



**Our Country:
Technology and
Innovation**



**Our Business
World***



More Than Money*

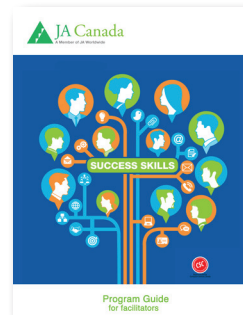
MIDDLE



**Economics for
Success***



Dollars with Sense*



Success Skills*



**Stronger Together:
Diversity in Action***

HIGH



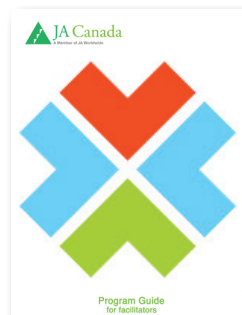
Be Entrepreneurial*



Personal Finance*



Titan



**Investment
Strategies Program**



**Company Program:
A Student Venture***

**Check out www.jacanada.org
for more information**

PROGRAM GUIDE

27



Our Country - Technology and Innovation
is a national program of JA Canada.



www.jacanada.org
1-800-265-0699

Developed by:

 The CANADIAN
Business Hall of Fame

 Temple *de la* renommée
de l'entreprise canadienne

LOTTE & JOHN HECHT MEMORIAL FOUNDATION

THE JOHN DOBSON FOUNDATION

Imperial Oil
Foundation



Fondation
l'Impériale

