# DATA DEFENDERS

## Teacher's Guide

MediaSmarts

CANADA'S CENTRE FOR DIGITAL AND MEDIA LITERACY

# Contents

# Introduction

Although young people worry about their privacy online, most are largely unaware of the vast amounts of behavioural and tracking information that is collected about them – and do little to protect themselves. This is important, as the minute children start going online they are purchasing online services with their personal info: in fact, apps and websites aimed at children collect more data than those aimed at adults.

By age ten, most Canadian children are active participants in the information economy, driving the need to ensure that they understand not only the commercial considerations of the platforms they use but also the ways in which those considerations influence how – and how much – they share.

The purpose of *Data Defenders* is to teach children and pre-teens about personal information and its value, and to introduce them to ways to manage and protect their personal information on the websites and apps they enjoy.

This Teacher's Guide includes background information, learning expectations and points of discussion on the types of personal information and privacy-management strategies that are presented in the game. The guide also includes an overview of the *Data Defenders* game, and exercises and handouts to help students to develop skills and confidence to manage their privacy online.[1]

## What is Personal Information?

Canada's *Personal Information Protection and Electronic Documents Act* defines personal information as "facts or subjective information about an identifiable individual". This can include your name, birthday, e-mail address and phone number, as well as your opinions, your spending habits, your IP address, photos and digital images, and your e-mail and text messages.

---

[1] Worksheets, handouts and activities in this Teacher's Guide may be reproduced for personal or educational use without permission, provided the copyright notice remains intact.

## Overview of *Data Defenders*

The core gameplay of *Data Defenders* is a "match-three" game that introduces players to key concepts of the information economy, particularly the idea that we pay for many online services and activities with our personal information. The game lasts two rounds.

In the first round, players try to get the highest possible score by matching tiles (representing different types of personal information) before they run out of moves. They are introduced to Algo Rhythm, a friendly computer who at first glance appears to want to help people play longer by giving them extra moves in exchange for information. However, at the end of round one players discover that Algo Rhythm is actually an ad broker – someone who collects personal information to build user profiles, which are then sold to advertisers. Players also find out that in addition to their match-three game score, there was also a hidden privacy score that went down every time they gave information to the ad broker.

In the second round, players are told that their new goal is to keep their privacy score as high as possible. To help them do this, they are given opportunities to complete quizzes that show them how to protect their privacy online and prevent them from losing privacy points.

Once they are completely out of moves, players see one of three ending screens, depending on how well they did. If needed, they are encouraged to replay the game to see if they can improve their scores (and see content and feedback they may have missed the first time around).

## Suggestions for Playing the Game

*Data Defenders* includes audio to accommodate different reading abilities. While the game can be played as a stand-alone activity, younger players will benefit from having a teacher or parent answer questions about some of the more difficult concepts and vocabulary in the quizzes and feedback. Here are some suggestions before you start:

- have a parent volunteer sit with a student while he or she goes through the game
- encourage students to play through the game more than once to discover different feedback and to obtain a higher score (and a better ending!)
- have pairs of students play the game and compare and discuss the endings they arrive at
- use a projector or whiteboard and navigate through the game with the whole class
- you can also further explore the concepts presented in this game by using its companion lesson plan: http://mediasmarts.ca/teacher-resources/data-defenders-understanding-data-collection-online
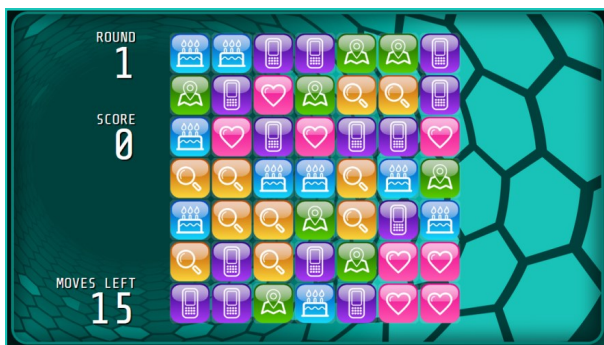
Note: Because the word "ad" appears throughout the *Data Defenders* game, some ad blockers may prevent it from playing. If you find that the game is not playing correctly, please add the *Data Defenders* web page (http://mediasmarts.ca/sites/mediasmarts/files/games/data-defenders/) to the list of exceptions (sometimes called 'whitelist') in your ad blocker settings and restart the game.

## Game Rounds and Play Flow

To start the game players are encouraged to enter their names on the main screen, after which they meet Algo Rhythm, who introduces them to five key categories of personal information that are typically collected when they are online:



- what they do online (e.g. browsing habits)
- their location
- information on their phone (e.g. photos)
- their personal preferences (e.g. television shows they like)
- and personally-identifiable information (e.g. their birthday).

At this point, players don't know that the game has already started: if they entered their name on the main screen of the game, they've already lost some privacy points.

### Round 1



In the first activity (Round 1 of the match-three game) players try to make rows of three or four identical tiles. At this point, they do not know that matching symbols representing these five personal information categories will cost them privacy points, and are unaware that they have a privacy score: this will not be revealed until the end of the round.

Each time players run out of moves, Algo Rhythm pops up and offers them a deal for more moves. Agreeing to these deals (which are modeled after the different ways commercial enterprises try to collect children's data online) also costs players privacy points.
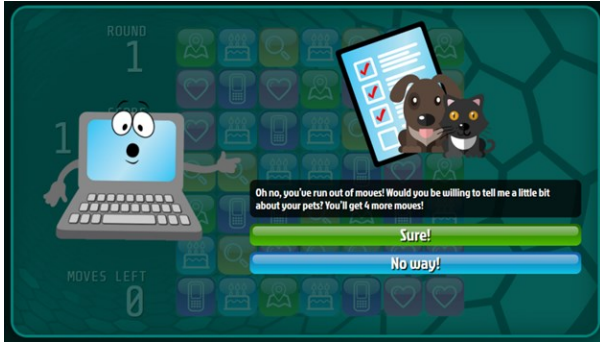


Finally, once players are out of deals and out of moves, Algo Rhythm reveals himself as a human Ad Broker in disguise. At this point, players also learn about their privacy score and how this score went down every time they matched personal information symbols or agreed to a deal.
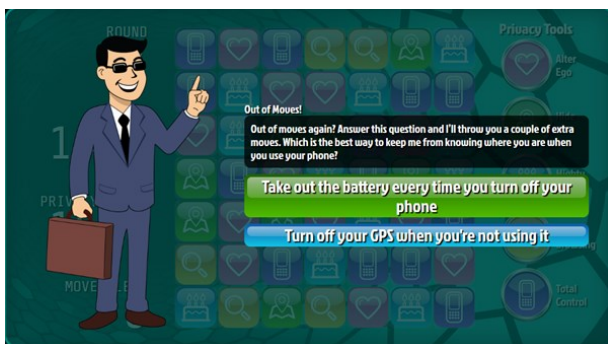
## Round 2
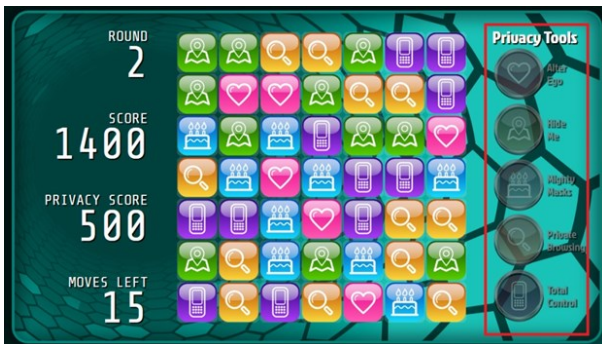


In Round 2, players can see their privacy score as well as their match game score and are encouraged to try to earn high scores in both categories before they run out of moves. To help them to get a high game score without losing privacy points, players are given a chance to earn protective privacy tools relating to each type of personal information.

These privacy tools are earned by successfully completing five short quizzes (one for each tool). The quizzes provide information about privacy risks and behaviours, debunk some common mistaken beliefs about privacy issues, and present real solutions and skills for situations kids this age are likely to encounter or have encountered already online. (Questions and answers to the quizzes can be found on page 9.)
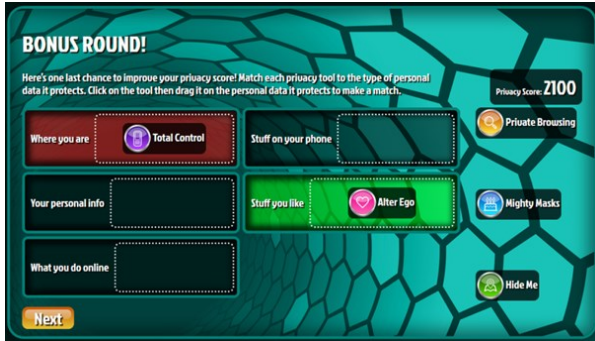


Like Round 1, in Round 2 players are offered chances to get more moves. This time, however, instead of tricking players into giving up personal information, the Ad Broker asks questions to test whether or not players have been paying attention to the privacy information they've been learning in the game.
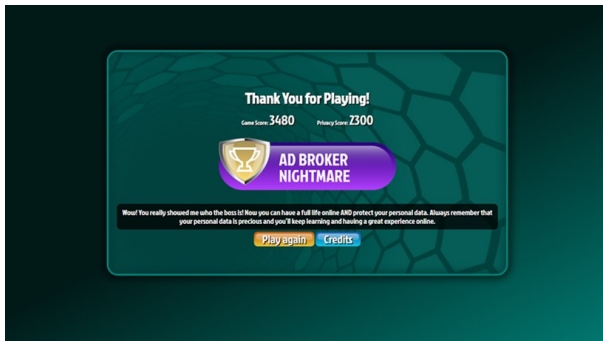
## Bonus Round



For players, the bonus round is their last chance to improve their privacy score before going to one of the three game ending screens. They do this by clicking and dragging a privacy tool to its matching privacy risk, which reinforces the knowledge of things they can do to reduce specific privacy risks.

## Ending Screens



Based on their privacy score, the player will receive one of three endings. Each ending screen has a different message of encouragement or congratulations, based on the player's score.

# Round 2 Quizzes: Questions and Answers

## "Private Browsing" privacy tool quiz

| | |
|---|---|
| **Question 1:** Most search engines record everything you search for. I buy that info and sell it to advertisers so they can show you personalized ads. How can you search without anyone watching? | **Correct answer:** Use a search engine that doesn't collect data. |
| **Question 2:** One of the things I know about you is which websites you visit and what you do there. How do I know that? | **Correct answer:** Websites put "cookies" on your computer. |
| **Question 3:** So you don't want me watching you all the time? I'm hurt! But since you've made up your mind, what's the best way to get started? | **Correct answer:** Install browser plugins or apps that protect your privacy. |

## "Hide Me" privacy tool quiz

| | |
|---|---|
| **Question 1:** I like knowing where you are. That way, I can sell your location to other companies so they can send you ads for stores that are close by! But how do I know where to find you? | **Correct answer:** Your phone sends a signal about where you are. |
| **Question 2:** You're playing a cool new game on your phone when you get a message saying the game wants to match you with players in your city. You didn't say where you live so how does it know? | **Correct answer:** You gave the game permission to get your location (GPS) info from your phone. |
| **Question 3:** After you share some vacation photos online, you start getting ads for a fast food restaurant in that city. But you never said where you went on your vacation, you just posted pictures: how did they know? | **Correct answer:** All the photos you take with your phone say exactly where and when the photo was taken. |

## "Mighty Masks" privacy tool quiz

| | |
|---|---|
| **Question 1:** You use a picture that you took of your dog for your player account in your favourite game. Then the company uses the same picture in an ad! Are they allowed to do that? | **Correct answer:** They can if you've agreed to it. |
| **Question 2:** You're setting up your player profile in a new game and they seem to be asking a LOT of questions. Do you really have to answer all of them? | **Correct answer:** See if there are questions you can skip. |
| **Question 3:** You start playing on your brand new gaming console and notice that everybody can see your real name and where you live! What can you do to stop that? | **Correct answer:** Look for the privacy settings on your game console and change them. |

## "Total Control" privacy tool quiz

| | |
|---|---|
| **Question 1:** This cool new app you're installing wants permission to access your address book and photos. What should you do? | **Correct answer:** Don't install it. Better not take chances! |
| **Question 2:** You get a couple of messages from some friends complaining that they're getting invitations from you to play a game that you downloaded recently. You didn't send those invitations – what's happening? | **Correct answer:** The game company sent those invitations to your friends. |
| **Question 3:** Sometimes you need access to the Internet when you are out of the house. What should you keep in mind before using a public Wi-Fi connection? | **Correct answer:** Anyone also using this connection can see where you go online. |

## "Alter Ego" privacy tool quiz

| | |
|---|---|
| **Question 1:** Your friend sends you a link to a quiz asking "Tell us what dessert you like and we'll tell you the kind of pet you should get." How can a quiz like this put your privacy at risk? | **Correct answer:** It's a sneaky way for advertisers to find out what you like. |
| **Question 2:** You are playing a space simulator game that gives you a chance to get 10 game coins if you fill out a survey about breakfast cereals. Why would a game company care about what cereal you like? | **Correct answer:** They can sell your answers to advertisers. |
| **Question 3:** You clicked on what you thought was a link to a funny video, but it ended up being an ad for a gambling site. Now you're seeing ads for gambling sites all the time! What's the best way to stop this? | **Correct answer:** Opt out of personalized ads. |

# Curricular Fits

*Data Defenders* is an interdisciplinary educational game that can be used to enhance:

- critical thinking and problem solving
- reading skills
- personal development
- ethical development
- technological competence and digital literacy

*Data Defenders* was designed to be used as an educational resource for subject areas including:

- English Language Arts
- Social Sciences
- Information and Communication Technology
- Civics
- Business

To find out how *Data Defenders* meets specific curricular requirements for your grade, subject and province/territory, see http://mediasmarts.ca/teacher-resources/digital-and-media-literacy-outcomes-province-territory.

# Learning Outcomes and Expectations

In the course of this game, students will:

- understand what is involved in the concept of personal data, defined as any data – whether or not it was made public – about an identifiable individual;

- know that some technical data can assist in the identification of individuals, that images have embedded metadata that describe their contents, and that online activity may leave traces (cookies, browsing history, etc.) which can contain personal data;

- be able to give examples of personal data that can directly identify individuals (maritial status, photo of a student in the class, etc.) and technical data that can monitor the activities of a person and identify them (cookies, geolocation data, etc.);

- understand economic aspects of the digital environment;

- understand the systems used to market products and offer free services (loyalty cards, targeted advertising via cookies, setting up user accounts, subscribing to newsletters, etc.) for the purpose of establishing personalized user profiles;

- understand that the majority of these free services collect and use personal data as well as storing this information in a database;

- know what data are collected and stored when they use the Internet, a social network or a service;

- give examples of the types of technical data likely to be collected when they are online (e.g. browser type, contacts list, geolocation data, private messages, etc.);

- understand the need and purpose of providing or not providing personal information, depending on the context and the end use of the information;

- learn to be careful to only share personal data that is absolutely necessary to register for a service;

- learn to protect their privacy online;

- know that they can manage the settings of the online applications and services that they use;

- manage the security and privacy settings of the accounts, profiles and devices that they use;

- become aware of how and why websites and apps collect personal information;

- develop an understanding of the commercial nature of the Internet.

# Additional Resources

## MediaSmarts Lessons

**Playing With Privacy**

In this lesson, students are introduced to the idea that their gaming experiences may compromise their personal information. Students consider the ways in which games gather or solicit information about them, learn about tools they can use to manage their personal privacy, and discuss the trade-offs between protecting privacy and enjoying a full game experience.
http://mediasmarts.ca/lessonplan/playing-privacy

**Privacy and Internet Life: Lesson Plan for Intermediate Classrooms**

This lesson makes students aware of online privacy issues, primarily those relating to giving out personal information on social networking websites such as Facebook. Students will learn to assess the various types of information they provide in Facebook profiles, along with the different levels of access. They will examine the potential risks and consequences of posting personal information on the Internet, and become more aware of how to protect their privacy.
http://mediasmarts.ca/lessonplan/privacy-and-internet-life-lesson-plan-intermediate-classrooms

**Who Knows? Your Privacy in the Information Age**

In this lesson, students explore issues relating to privacy through a series of activities, surveys and quizzes. Students assess how much personal information has been collected about them, determine what information is necessary to collect, and decide when collection of personal information becomes invasive.
http://mediasmarts.ca/lessonplan/who-knows-your-privacy-information-age-lesson

## MediaSmarts Resources

**Privacy Issues**

This section of the MediaSmarts website includes more in-depth information relating to online privacy and an overview of Canadian legislation.
http://mediasmarts.ca/digital-media-literacy/digital-issues/privacy/privacy-issues

**Protecting Your Privacy on Commercial Websites - Tip Sheet**
http://mediasmarts.ca/tipsheet/protecting-your-privacy-commercial-websites-tip-sheet

## Related Resources

The Office of the Privacy Commissioner of Canada has an excellent lesson plan for kids in grades 7 and 8 titled *Kids' Privacy Sweep*, where kids analyze their favourite websites and applications to find out what kind of information they collect.
https://www.priv.gc.ca/youth-jeunes/fs-fi/yth_lesson_e.asp

The Office of the Privacy Commissioner of Canada has also produced resources, tips and tools for teachers and parents to help them protect children's privacy and to discuss privacy issues with them:
https://www.priv.gc.ca/en/privacy-topics/privacy-and-kids/

The Mozilla Corporation, a non-profit organization, has created, and follows, five data privacy principles that serve as a good example of best data collection practices.
https://www.mozilla.org/en-US/privacy/principles/

The Electronic Frontier Foundation (EFF), a leading non-profit organization defending civil liberties online, has created a three-part series on how people are tracked online,
https://www.eff.org/deeplinks/2009/09/new-cookie-technologies-harder-see-and-remove-wide

The EFF has also created a browser add-on that "stops advertisers and other third-party trackers from secretly tracking where you go and what pages you look at on the web."
https://www.eff.org/privacybadger.

# About MediaSmarts



MediaSmarts is a Canadian, not-for-profit centre for digital and media literacy. MediaSmarts' vision is that young people have the critical thinking skills to engage with media as active and informed digital citizens.

MediaSmarts:

- **offers** hundreds of free media literacy resources including classroom ready lesson plans, online educational games for kids and background information on media literacy, all of which are available on the MediaSmarts website mediasmarts.ca.

- **provides** professional development (PD) resources and training. MediaSmarts' PD resources are available through licensing arrangements with provincial/territorial departments of education, school districts and boards, libraries, post-secondary institutions and individual schools.

- **conducts** research. Since 2000, *Young Canadians in a Wired World (YCWW)* – the most comprehensive and wide-ranging research of its kind in Canada – has examined the Internet activities and attitudes of more than 11,000 students in grades 4 to 11.

- **hosts** *Media Literacy Week* in partnership with the Canadian Teachers' Federation. The purpose of the week is to promote media literacy as a key component in the education of young people and to encourage the integration and the practice of media education in Canadian homes, schools and communities. Visit the *Media Literacy Week* website at medialiteracyweek.ca for more information on this event.

Data Defenders *has been funded by the Office of the Privacy Commissioner of Canada (OPC). The views expressed herein are those of the author(s) and do not necessarily reflect those of the OPC.*