

Hector's World™—Lesson plan

Episode: Computer security: Oops

Upper primary

BACKGROUND

Students of this age are emerging users of internet-enabled computers. They may be involved in a range of online activities including: playing online games against other players, participating in online communities, using search engines to research school projects and homework, communicating using ICT (such as IM and email), creating and posting content online and searching for and downloading digital material, such as music.

This lesson aims to assist students to recognise some of the security risks associated with computers, particularly identifying viruses as programs that can damage a computer (including pop-up files). It explores basic strategies to prevent virus infection and demonstrates safe computer use practices when using the internet, such as using strong passwords and password protection. The lesson plan also highlights the importance for students to turn to a trusted adult or carer for help.

OBJECTIVES:

Students will:

1. understand that strong passwords can help protect computer files and information
2. understand that a computer virus can harm a computer, but users can take steps to prevent this.

CURRICULUM LINKS

This lesson plan supports the National Framework for Values Education in Australian Schools, including the Nine Values for Australian Schooling. For more information, visit:

- www.valueseducation.edu.au/verve/_resources/Framework_PDF_version_for_the_web.pdf
- www.valueseducation.edu.au/values/val_national_framework_for_values_education,8757.html

The lesson plan supports the national Statements of Learning in ICT for Year 5:

Communicating with ICT

Students have opportunities to use different digital media to improve the communication of ideas, express a personal image and establish an identity. They reflect on experiences to analyse the delivery and effectiveness of the communication.

Ethics, issues and ICT

Students apply codes of practice that promote safety, responsibility and respect when working in online and stand-alone environments. They examine practices in a variety of ICT environments to recognise the underlying values. They recognise the importance of acknowledging the owner(s)/creator(s) of digital work and establish sound practices for acknowledging them. Students implement a range of preventative strategies for addressing health and safety issues when using ICT and develop and apply strategies for the security of personal information.

The Year 5 statement is available at:

www.curriculum.edu.au/verve/_resources/StmntLearning_ICT_2008.pdf

Cross curriculum links

This lesson plan can be used in any of the following subjects and topic areas:

- the arts
- communication
- health
- identity
- personal development
- science and technology
- SOSE/HSIE.

SUGGESTED LESSON PROGRESSION

Teacher's hints

Although this lesson may stand alone, students will find it easier if they have already been introduced to Hector's World, and the lesson is used as part of a unit on Hector's World and online safety.

There are two activities to reinforce the lesson plan concepts. You should print, copy and prepare these before the lesson. The activities are included at the end of this plan, along with additional extension activities and learning links.

The episode contains two 'Pause points'  to provide an opportunity for classroom discussion.

Introduce the animation to the class by asking who is familiar with Hector's World. Allow students to share some of their previous knowledge.

Explain, for anyone who is not familiar with the resource, that Hector and his friends use lots of technology in their world under the sea, Silicon Deep. They like to learn about helping each other and being good digital citizens. This episode is about a computer virus.

Ask the students:

- Who has heard the term 'computer virus'?
- What is a computer virus?
- What does a computer virus do?

Acquaint students with the term 'computer virus' through a short discussion. Some students at this age may know the terms 'virus', 'anti-virus', 'pop-up window', 'spyware' or 'malware'. They may have a basic understanding that a computer virus can harm or damage computer files.

Record new or unfamiliar vocabulary arising from discussion on the board.

Explain that in this episode, Sprat's computer is infected with a virus just as his friends are about to watch something very special on it. He will need some help to sort out the problem.

ACTIVITY

1. Before viewing the animation

Show students the picture of the 'pop-up window' from the episode (Image 1 attached). Ask students to look for this 'pop-up window' scene and watch closely what happens to the computer.

2. View the animation

View Hector's World Episode: Computer security: Oops.

A pause point symbol  will appear in the episode in the lower right corner, three seconds before the point to stop the video.

Pause point 1

At the first pause point, stop the animation and allow students time to digest Sprat's problem and share some ideas about possible solutions.

Ask the students:

- What do you think has happened to Sprat's computer?
- Sprat has invited all his friends to watch the special concert on his computer and now his computer has broken down. How would Sprat be feeling right now?
Create a list of words on the board (or large paper) that students use to describe Sprat's feelings. This will be used later in the student activities for this lesson. The list is likely to include: unhappy, scared, worried, afraid, sorry, sad, upset, tricked, bad.
- What can Sprat do to solve his problem?

Additional questions:

These questions explore Sprat's need to find a resolution quickly and how this might make him feel.

- Do you think other stories and pictures Sprat created on his computer will be safe?

- What could happen if Sprat tries to fix the computer himself?
- What could Sprat say to his friends who are here to watch the concert?
- How did Hector and Tama feel when Sprat rushed out?
- Who can Sprat turn to for help?

Resume the animation.

Pause point 2

At the second pause point, stop the animation and allow students time to digest the question and share some ideas.

Ask the students:

- What could Ranjeet say to make Sprat feel better?
Using the list created at Pause point 1, ask students what Ranjeet could say if Sprat is feeling: for example *unhappy, scared, worried, afraid, sorry, sad, upset, tricked or bad*.

Conclusion of the animation

Immediately following the viewing, briefly discuss what happened in the animation focussing on Sprat's advice at the end and Sprat's strategy to solve the problem. New vocabulary and the list of words describing how Sprat felt will aid the discussion.

Discuss the key points in the episode:

- Sprat's Dad used his strong password to log on to the computer.
- Sprat clicked on a pop-up window.
- A virus caused Sprat's computer to stop working.
- Sprat sought help and did not try to fix the computer himself.
- Sprat's friends help him to feel better.

3. Review and consolidation of learning

Student activity 1: What happened next...?

Organise students into small groups to complete the *Student activity 1: What happened next...?* Students work together to place the story strips from the activity sheet in the correct order. Each story strip highlights a key point in the story. This activity helps students recall the important messages. You need to prepare the student activity sheets prior.

Alternative activity: Students work in a group of eight, each with a story strip. They line themselves up in the correct order of the story. The teacher may ask each group member to read out or act out their part of the story.

Student activity 2: Key Ideas

Distribute Student activity 2: Key Ideas to students.

Direct students to complete the activity sheet. Students can work in pairs to write down the key messages in the story in their own words. Words from the list on the board created during discussion and pictures on the activity sheet will assist students to recall the key messages. This can also be assigned as a homework activity.

Student activity 3: Using passwords to protect valuable information

SUGGESTED LESSON PROGRESSION:

Teacher's notes

A student's first introduction to a computer password may be when they begin using a school network or a shared classroom computer. This activity introduces the concept of a strong password. The activity encourages students to draw a picture that helps them remember their password.

In some school environments young children may share a class password to access a class blog or a shared area of a computer network. Teachers can encourage the use of a strong password in this situation and reinforce the concept that passwords protect files and information that are important to us as a group.

Introduce the activity by determining students' current knowledge about passwords and their purpose.

- What is a password?
- Who uses passwords?
- Why are passwords used?
- Why do people keep their passwords secret?
- What happens when someone guesses a password?
- What is a weak password/what is a strong password?

Often young students will consider using the name of a favourite pet, a birthday or a nickname as a password. It is important to help students understand that their friends may already know this information. They may also consider an easy to remember number sequence e.g.12345 or even the word 'password'. It is important to help students understand the difference between a weak password and a strong password. You may like to display some examples on the board.

Explain that this lesson will assist students to make up a strong password.

A strong password is made of letters, numbers and symbols combined in a way that no one can guess.

Explain that writing the password down means that someone may see it and it will no longer be a secret password. Drawing a picture can be a way to help remember a password and still keep it secret.

Distribute the 'Make a strong password' activity sheet to students. This sheet is available on the Silicon Deep Workshop at:
www.hecctorsworld.com/island/main/workshop_interior_01/index.html

The activity sheet encourages students to choose words, numbers or symbols from each column and combine them to make a strong password. Students can circle their choices but should try to keep them secret. Students then draw a picture that will help them remember their password and discard the top portion.

Students may have computer passwords at school or home. The class may share a log-on to class materials or website. Their examples can be integrated into the discussion.

Ask the group:

- Who uses passwords?
- Why do some websites use passwords?
- What could happen if someone knows your computer password?
- How does a password 'protect' computer files?
- Why do we want to protect some computer files?

EXTENSION ACTIVITIES FOR ALL AGE GROUPS

The following are suggested activities that can be used to further extend students' understanding of computer security and passwords. These are for all age groups so they can be modified to suit individual classes.

Some of these activities use Hector's World resources that are available on the following websites:

Hector's World pages: www.cybersmart.gov.au

Information Island or Silicon Deep: www.hecctorsworld.com

1. Invite an expert

Invite the school computer technician or a computer technician from the local community to speak to students about the importance of computer security and what strategies are used to keep the school computers safe. Students might prepare questions in advance.

2. Drama activity

Organise students into groups of six or seven to act out a 'mini play' that retells the story.

A drama activity gives students scope to explore alternative solutions, similar events or other computer security issues. Students can use the character cards or character hats to portray each character. These resources are available from the Hector's World pages on www.cybersmart.gov.au and www.ectorsworld.com.

3. Music video and song

These resources are available from the Hector's World pages on www.cybersmart.gov.au

Play the music video *Keep Yourself Switched On* to introduce the class to the music and lyrics.

The song encourages students to keep themselves up-to-date and build their skills. It includes ideas about virus symptoms and virus prevention. Song lyrics can be displayed using a data projector or printed for students to read.

Other ideas

- In groups, students can create movements and dance steps to the song.
- Teach the song to another class. This teaching could cascade across the school until all students sing the song together. That is, the first class to learn the song teaches to the next. Each class teaches another until the whole school knows the song and can sing it together.

IMAGE 1: POP-UP WINDOW

For use before viewing the episode.

This is Sprat the fish. He is using his computer when a pop-up window appears on the screen. Look for this scene in the episode and watch what happens next.



IMAGE 2: SPRAT

For use after Pause point 1

How does Sprat feel?



STUDENT ACTIVITY 1: WHAT HAPPENED NEXT?

Note: Play the animated episode first before completing this activity.

Below are the major points in Hector's World *Episode: Computer security: Oops*. Students can work together in small groups to place the story strips in the correct order. The first one is numbered. Alternately a group of eight students can each be given one story strip. They must then arrange themselves in the correct order. The teacher may then ask each student to read out or act out their part of the story.

Instructions: Print and make copies of this list. Cut along the lines to create individual story strips and mix their order. Give a complete set of strips to each group and ask them to find number one. Ask the students: What happened next? Groups can then work at their own pace to retell the story in the correct order.



Sprat invites his friends to his house to listen to music.



Sprat's Dad uses a strong password to log on to the computer.



Sprat clicks on a pop-up window.



Sprat's computer gets a virus.



Sprat's computer stops working.



Sprat gets help from Ranjeet the crab.



Sprat's friends help him to feel better.



The music starts and Ranjeet, Sprat and Tama dance.



STUDENT ACTIVITY SHEET 2: KEY IDEAS

Sprat invited his friends to see a special online concert on his computer. The computer stopped working just before the concert was going to start.

1. Sprat's computer stopped working because...



2. When the computer stopped working, Sprat felt...

3. Ranjeet helped Sprat feel better by saying...



4. A computer needs 'anti-virus' software so the computer will...



5. If something goes wrong with my computer
I will...

