



LESSON PLAN

Level:	Grades 9 -12
About the Author:	Matthew Johnson, Director of Education, MediaSmarts
Duration:	1 - 1.5 hours

Secure Comics



This lesson is part of *USE, UNDERSTAND & ENGAGE: A Digital Media Literacy Framework for Canadian Schools*: <http://mediasmarts.ca/teacher-resources/digital-literacy-framework>.

Overview

In this lesson, students read an interactive online comic that teaches them key concepts and skills relating to three cybersecurity topics: malware, passwords and privacy from geotracking devices. Following this, students research their own cybersecurity topics and learn how non-fiction comics are made in order to create their own Secure Comic.

Learning Outcomes

Students will:

- Explore the concept of privacy as it relates to the Internet
- Learn about key threats to cybersecurity
- Learn tools for protecting themselves and their networked devices from cybersecurity threats
- Understand the potential risks of sharing inappropriate information
- Learn the essential elements of a non-fiction comic
- Use digital tools to create a non-fiction comic

Preparation and Materials

Arrange for students to access the *Secure Comics* interactive online comic: <https://embed.gsrca.de/p/9suz/GZSTGNZ/play.html?mode=embed&s=960>

Photocopy the following handouts:

- *Secure Comics AntiVirus Worksheet*
- *Secure Comics Passwords Worksheet*
- *Secure Comics Privacy Worksheet*
- *Secure Comics Assignment*
- *Cybersecurity Research Worksheet*



- *Non-fiction Comics Worksheet*
- *An Introduction to Graphic Novels: Sequences*
- *An Introduction to Graphic Novel: Basic Cinematography and Perspective*
- *Cybersecurity Comic Rubric*

Review the following backgrounders:

- *Secure Comics AntiVirus Worksheet: Teacher's Version*
- *Secure Comics Passwords Worksheet: Teacher's Version*
- *Secure Comics Privacy Worksheet: Teacher's Version*

Procedure

Secure Comics

You may choose to have students either complete all three worksheets, or have students only responsible for one worksheet each and then fill the others in based on class discussion. Distribute the worksheets you are having students complete, then have students read their relevant chapter, complete the online tasks and fill in the handout.

Depending on your students and the access you have to networked devices, you may choose to have students read the chapter(s) on their own, in pairs, in groups or as homework.

Review the Teacher's Version of the handouts and take them up with the class.

Assessment/Evaluation Task

Distribute the handout *Secure Comics Assignment* and either assign or have students choose a partner. In each pair one will research a cybersecurity topic and the other will research making non-fiction comics. The pair will then collaborate on making a non-fiction comic on their cybersecurity topic, which they may do either by hand or using an online tool. Below are some resources for making comics online; because some require registration or have paid versions you will want to review them before recommending any to students.

- Pixton (<https://www.pixton.com/>) is a full-featured paid comics maker with a free trial period
- Storyboard That (<https://www.storyboardthat.com/comic-maker>) is a versatile paid comics maker with a free trial period
- Smilebox (<https://www.smilebox.com/maker/comic-maker/>) allows students to create photo-comics
- Make Beliefs Comix (<https://makebeliefscomix.com/>) is a free comics maker that has a slightly steeper learning curve but provides many useful resources
- Canva (<https://www.canva.com/design/play?category=tACZCigycaA&referrer=comic-strips-landing-page>) provides premade comics templates and characters



Secure Comics AntiVirus Worksheet

1. Define the following terms:

Antivirus:

Virus:

Worm:

Trojan:

Spyware:

Unknown:

Zero-Day Virus:

Virus fingerprint:

2. On separate paper, list and explain four different strategies for preventing and dealing with malware.
3. On separate paper, list and explain five myths about malware and antivirus.
4. List two ways in the story in which computers are infected by malware.



Secure Comics Passwords Worksheet

1. Why should you not use dictionary words in your passwords?
2. How can our social networking activities give your passwords away?
3. What two elements contribute to password strength?
4. Create a passphrase and explain what it means.



Secure Comics Privacy Worksheet

1. Define the following terms:

Geotagging:

Latitude:

Longitude:

EXIF:

2. What information is included in a geotag?

3. What personal information about Jane was revealed at:

8:12 AM:

8:45 AM:

11:03 AM:

12:25 PM:

5:56 PM:

10:48 PM:

4. What steps should you take to keep yourself from giving away too much privacy through your photos?



Secure Comics AntiVirus Worksheet: Teacher's Version

1. Define the following terms:
Antivirus: Software that protects your computer from malware
Virus: Malware that inserts copies of itself into other programs
Worm: Malware that is a standalone program that can copy itself
Trojan: Malware that is disguised as a legitimate file
Spyware: Malware that gathers and sends information about the infected computer
Zero-Day Virus: Malware that hasn't yet been identified by antivirus software
Virus fingerprint: Unique sequences of code used to identify viruses
2. On separate paper, list and explain four different strategies for preventing and dealing with malware.
Update your antivirus often so that it always has an up-to-date list of virus fingerprints.
Clean: Removing malware from infected files
Quarantine: Separating malware-infected files from the rest of your computer
Delete: Removing malware-infected files so they can't harm your computer
3. On separate paper, list and explain five myths about malware and antivirus.
Viruses damage hardware
Macs are more secure
More than one antivirus is better
Viruses are only communicated by Internet
Trusted websites can't communicate malware
4. List two ways in the story in which computers are infected by malware.
An infected email attachment
A USB drive



Secure Comics Passwords Worksheet: Teacher's Version

1. Why should you not use dictionary words in your passwords?
"Dictionary attacks" use words, phrases and character substitutions to guess passwords that are based on dictionary words.
2. How can our social networking activities give your passwords away?
If your passwords are based on things that are meaningful to you (your pet's name, your favourite food, etc.) you might give them away by mentioning them on your social networks.
3. What two elements contribute to password strength?
Length and complexity.
4. Create a passphrase and explain what it means.
Example: !!!rSC.
Explanation: I like! reading Secure Comics.



Secure Comics Privacy Worksheet: Teacher's Version

1. Define the following terms:

Geotagging: Attaching geographic information to a photo

Latitude: Your position on the Earth in relation to the Equator (north or south)

Longitude: Your position on the Earth in relation to the Greenwich Meridian (east or west)

EXIF: Information attached to your photos that includes when you took them and (if your GPS is on) where.

2. What information is included in a geotag?

The date, time and location (in GPS coordinates) the photo was taken.

3. What personal information about Jane was revealed at:

8:12 AM: Where she is; her pet's name

8:45 AM: Where she is; her kids' names and where they go to school; when they usually leave for school

11:03 AM: Where she is; her birthday

12:25 PM: Where she and her friend are; her favourite food

5:56 PM: Where she is; her travel plans; her plane tickets and credit card

10:48 PM: Where she is; her email address and phone number

4. What steps should you take to keep yourself from giving away too much privacy through your photos?

Disable geotagging

Think about what your photos say about you and others



Secure Comics Assignment

1. With a partner, select one of the following cybersecurity topics:
 - Spam
 - Phishing/Smishing
 - Identity theft
 - Man-in-the-middle attacks
 - Online fraud
 - Scareware
 - 419 Scam
 - IP spoofing
 - Pharming
 - Bluejacking
2. One partner will now research your chosen topic and complete the *Cybersecurity Research Worksheet*. The other will research how to create effective non-fiction comics and complete the *Non-fiction Comics Worksheet*.
3. Using what you've learned, you and your partner will now work together to create a non-fiction comic that explains the key information about your cybersecurity topic. Keep in mind that the purpose of your comic is to *clearly explain* the topic and provide the reader with *useful and concrete steps to take*.
4. Your comic can either be drawn by hand or created using an online comic creator.
5. You and your partner will hand in your comic along with the worksheets you completed, including your list of sources used.



Cybersecurity Research Worksheet

Topic:

1. List **five key facts** about this topic and explain **why** they are important for people to know.
 - a.
 - b.
 - c.
 - d.
 - e.
2. On a separate piece of paper, list **three tools that people can use or steps that people can take** to deal with this issue. Include a brief paragraph explaining **how** to do them.
3. List at least **three sources** that you used in finding and verifying this information.



Non-fiction Comics Worksheet

1. Find at least three examples of **non-fiction comics** in print or online. List the titles and authors below.
 - a.
 - b.
 - c.
 - d.

2. Read the following articles:
 - *An Introduction to Graphic Novels: Sequences*
 - *An Introduction to Graphic Novels: Basic Cinematography and Perspective*

3. On a separate piece of paper, find one example from the non-fiction comics you selected of how the following elements are used to communicate the content, message or idea.

Panel-to-panel sequences:

 - Moment-to-moment
 - Action-to-action
 - Subject-to-subject
 - Scene-to-scene
 - Aspect-to-aspect

Cinematography:

 - Height
 - Distance
 - Static camera
 - Dynamic camera

Page layout:

 - Panel size



An Introduction to Graphic Novels: Sequences

Written by Anise Shaw. Reprinted with Permission.

<<http://www.cloudscapecomics.com/2011/07/06/an-introduction-to-graphic-novels-sequences/>>

Recently I was asked to teach an adult graphic novels class at Bonsor Community Centre in Burnaby. I jumped on the opportunity to work with an adult group, something that I don't always get to do. As I was creating my lesson plans, I immediately had the idea that I should also put them on the Internet for others to follow along with the class. I also gave out my website address so my students could come back here to refresh their memory and look for supplementary material.

Feel free to follow along with these lessons. I will be including the exercises and projects we did in class so you can do them at home as well. If you want to post links to your results, I may be able to come by and give critique (which is a hugely important part to learning, don't avoid it!).

Introduction to Graphic Novels

Before we get started on the actual learning, sometimes it's nice to understand why you might be taking this course. I like to ask a few preliminary questions to find out what we already know.

- Why are you interested in making graphic novels?
- What is a graphic novel to you?
- What do you hope to be able to do after these 8 weeks are over?

A graphic novel is a long form comic that can be about any subject your heart desires. The graphic novel has become a popular medium due to its breadth of content and long, involved storylines. Many graphic novels are one shots, like Craig Thompson's *Blankets*, while others are serialized.

The next question, of course, is what does it mean to be a comic artist?

- We think in sequence and pictures
- We are prepared to show our art to a wide audience
- We work in a reproduced medium, and must always have technical restrictions in mind
- Our goal, no matter what kind of comic we make, is to make something clear, understandable and interesting.

Being a comic artist will take a bit of extra work, and there are things you can do outside of class to help improve your skills and get you into the mindset of making comics.

- Try to do life drawing, I like to go once a week whenever I can.
- Your sketchbook is your lifeblood, have one with you all the time. Having a pencil in your hand and actually drawing in this sketchbook will help too.
- Spend time pulling apart TV shows and movies, comics' sister sequential mediums, shot by shot. How do they deal with the camera, audience, story, etc?



- Copy down conversations, listen to how people speak.
- Read actively, especially comics, and pull it apart.
- Start small. Short stories, one page comics and work yourself up to something bigger.

Sequence

We're going to study six sequence transitions as discussed by Scott McCloud in his book *Understanding Comics*. The essence of a comic is its panels, and the magic between those panels is our sequence. All of a reader's assumptions happen during this sequence in what is called closure. Closure is our ability to take similar looking images and create a relationship between them. I highly recommend picking up a copy of McCloud's book, as it's essential reading for all comic artists.

McCloud has conveniently categorized these six transitions for us, but it's important to remember that all categories are meant to be broken. By learning how to use these transitions, you may warp them to whatever benefit they will serve for your comic making purposes. Our panel is time. The particular unit of time that the panel takes-up is dependent upon its transitions.

1. Moment to Moment

This is the transition that uses the least amount of time; changes in panels take only seconds.

Moment to Moment transitions help to give a "slow motion" feel to a comic, making each second an important one, and bringing each action into stark relief. A great use of moment to moment transitions is to slow down the pace of a comic, and allow the reader a moment to breathe (haha, moment).

2. Action to Action

This is often the transition you may find yourself using the most. This is because it uses closure to show the action of the body while not being as painfully slow as a moment to moment transition. With Action to Action, our first panel is the beginning of the action and our last panel is the end. We may need to put panels in between depending on the complexity of the action.

3. Subject to Subject

We can push action in our panels one step further by using a Subject to Subject transition. Working within a singular subject or idea, this transition shows whatever might be necessary to get the idea across. This is also where we start to see *subjective action*, which is really prominent in Japanese comics.

4. Scene to Scene

All of the transitions up until this point have dealt with small amounts of time. However, Scene to Scene deals with jumps between large amounts of time and/or space. The scene to scene transition is a powerful tool that we can use to transport our audience to different times and places, with little to no explanation as to what has happened in between. Masterful use of the scene to scene transition even allows a comic writer to compress time, dealing with multiple moments at the same time, as shown by Alan Moore in *Watchmen*.



5. Aspect to Aspect

Our fifth transition is a bit of an anomaly. While all of our previous transitions have dealt with the passing of time, Aspect to Aspect deals with no time at all. It effectively freezes time to establish a mood, feeling or emotion of a scene. Think of this transition as “the wandering eye”, looking around and taking quick snaps to understand what’s going on. Aspect to Aspect has not been a popular transition in most mainstream North American comics, mostly due to page count. Japanese comics and graphic novels, with their longer format, use aspect to aspect as a tool to help the reader become emotionally invested in what is happening. The master of the aspect to aspect transition will use it to help pace a comic, create a mood and establish something that has happened all at once.

6. Non-Sequitur

The final sequence places panels together with no relationship to each other. McCloud argues that the existence of non-sequitur sequences tells us something important: that no matter how dissimilar two images are, when we put them together we automatically start to look for a relationship. This is a crucial point to remember, because it means that during our quest for clarity, we don’t have to over explain. In fact, we can explain very little and readers will look for the understanding themselves.

Exercise

Today we’re going to warm up with a simple exercise. We’re going to write a short one page comic, in which something simple happens, and we are going to focus on using at least three of the above transitions. Extra credit for anyone that uses the first 5 and an extra point for anyone who throws in a non-sequitur. The story of this comic is not so important as mastering the sequence of the panels. For now, keep your panels a uniform size to help emphasize this sequence. When we finish, we will take a look at what everyone has done and quickly discuss it.

Basic Drawing tips

- Hold the pencil loosely and at least 2 inches away from the shaved wood of the tip. We want to put little pressure on the pencil while we are sketching
- Create the overall page first, the meta details like quick panel layouts, main foci, speech bubbles and general shapes. Then move into the details.
- Your eraser is not for erasing mistakes, it is a broom to be used to clean up your sketching work.
- Draw lightly, or you will absolutely regret having to erase anything
- Use your whole body to draw. Sit comfortably. Use your shoulder and elbow for large details and your wrist and fingers for small details.
- Stay loose at the beginning, refine later.

Recommended Reading for Sequence

- *Watchmen* by Alan Moore and Dave Gibbons
- *Bone* by Jeff Smith
- *Nausicaa* by Hayao Miyazaki

Good luck and keep drawing!



An Introduction to Graphic Novels: Basic Cinematography and Perspective

Written by Anise Shaw. Reprinted with Permission. <<http://www.cloudscapecomics.com/2011/07/13/an-introduction-to-graphic-novels-basic-cinematography-and-perspective/>>

These lessons are intended for beginners, those just trying their hand at comics for the first time and feeling overwhelmed. Feel free to discuss more advanced concepts in the comments!

Lesson 2: Basic Cinematography and Perspective

Now that we have practiced going from panel to panel, now it's time to focus on what will go in those panels. Let's think of our panel as the frame of a photograph, and what we choose to put in is the same process as what we choose to take a picture of. Therefore, our frame is a camera. We want to use this camera to capture points of interest and to effect our story in different ways. We can accomplish this by using *Point of View* (POV) to our advantage.

Even though we are working with a two dimensional medium, we have to think three dimensionally. Cinematography is this process, and we need to consider three different perspectives (or axis).

Height

This is moving the camera on the Y axis, or up and down. In drawing, this is directly related to where we put our *horizon line*, so keep your shot in mind when you begin a drawing using one or two point perspective. The extremes of moving the camera in this way are:

Bird's Eye View

When we look down on a scene like a bird, we are looking from bird's eye view. This is a great way to show the layout of a space, but also carries with it the feeling of being larger than life. The bird's eye view is both whimsical and analytical, and can quickly create a sense of dissociation with a scene. Bird's eye view is accomplished by placing the horizon line around the top of your page, or even higher and off the page.

Worm's Eye View

This view is from underneath, and allows the reader to feel small and overpowered. The worm's eye view is effective for showing the impact of a structure or scene and it's imposing nature. Using this perspective often will create a sense of foreboding and perhaps even helplessness. We can make a worm's eye drawing by place our horizon line low on our page.



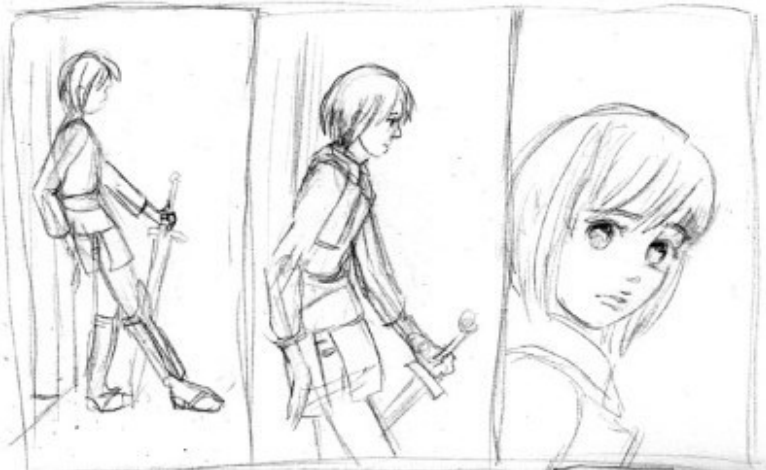


Eye Level

Eye level, or anything around eye level, is a perspective that creates a strong sense of reader identification. This is how we see things everyday, and we feel like we're a part of these scenes when we see them in comics, movies and television. Perspectives hovering around eye level are the most popular, as having an extreme feel to your scene is usually reserved for particular moments. We create an eye level drawing by placing the horizon line around the middle of the page.

Distance

This is moving the camera on the Z axis, or back and forth. We change the distance of our drawings by drawing elements larger and cropping them.



Three different distances in sequence

There are different distances and different ways to use them. Choosing your distances will be of huge importance, so don't be afraid to play with them. Here are the different kinds of distances:

- Long shot: this is a shot that allows you to show a significant amount of background. Use these to establish location, positioning of characters and to distance the reader from the characters. Perhaps even to create a sense of isolation
- Medium shot: a bit closer, we don't see as much background and a character or object is framed as the focus of the drawing. Medium shots are great to show action, two or three people physically interacting, or someone interacting with the surroundings. Medium shots are one of the most common, I know I like to use them a lot.
- Head shot: a picture or panel of a character or subject where it fills the whole picture. Usually from the chest up on a person. Background is minimal or non-existent, and you don't want to cram too many people in.
- Close up: focusing the camera closely on a person or object, usually for dramatic effect.





Rotation

This is moving on the X axis, or around something. We change our rotation to get a better look at something, to look at something from a character's perspective, or a whole host of reasons. Changing the rotation of a drawing may help it to go from sterile to dynamic. In wondering why a picture or panel isn't working, try to shift the rotation and it will most likely fix major composition problems.

Use rotation to your advantage in storytelling.

The Static vs the Dynamic Camera

Keeping the "camera" in one position for a series of panels is using a "static camera", while changing height, distance and rotation from panel to panel is a "dynamic camera".

Using either method will have a different effect on your story and pacing. There are comics that use one or the other exclusively and many mix the two techniques together.

1. The static camera: showing small changes, slowing down the story, and emphasizing detail. The static camera can help you avoid melodrama when a tense moment has arrived, and be used to **keep** the audience absorbed **in** dense pieces of dialogue
2. The dynamic camera: shows large actions well, creates drama and movement and helps to give an otherwise bland bit of sequencing a bit of visual interest.

The point is to try to keep balance for your story. If your story feels like it's dragging, add a few camera changes. If it has an "action film" feel where it's completely unnecessary, slow it down with a static camera. There is no "right formula". Do what feels best for your story and don't be afraid to experiment.

Exercise 1

Draw a four-panel comic of a person ordering and receiving coffee from a barista. Keep the panels evenly sized and the camera static on a particular point of interest. Describe to yourself how you feel about the sequence, pacing and cinematography.

Exercise 2

Draw another four panel comic with the same story. Continue to keep the panels evenly sized. This time, change the camera angle every panel to use the dynamic camera.

Panel Size

Comics have a special relationship to cinematography that television and movies do not. A television or movie screen is uniform, but we comic artists have the option of changing our panel sizes.



You remember last class when we discussed going from panel to panel occupying time? The same principle applies here, except the single panel also occupies time as well as the transition. As such, longer, more horizontal panels feel like they take “longer” than smaller, more square or vertical panels.

It’s very common for stories to start out with a long, horizontal panel, usually in a long shot format. This is called the establishing shot, and it allows our reader to get a sense of the story setting before being thrown into what the story is all about.

Exercise 3

This time when we redraw our 4 panel sequence, I want you to focus on panel size. You may extend your comic into 2 or 3 rows if necessary. The choice of dynamic or static camera (or a combination of both) is also up to you.

Tips for Perspective

- Buy a good perspective book, don’t try to memorize the rules. You might break your brain.
- Consider your horizon line for a moment, where you place it has importance
- One point perspective will connote a feeling of traveling, or having a road laid out for you.
- Two point perspective doesn’t tend to connote movement, but more the weight of objects themselves.
- Use perspective to draw characters as well as background, or your characters will look like they’re pasted on.

Good luck and keep drawing!



Cybersecurity Comic Rubric

	Learning Expectations	Achievement
<p>Use</p> <p>Skills and competencies that fall under “use” range from basic technical know-how – using computer programs such as word processors, web browsers, email, and other communication tools – to the more sophisticated abilities for accessing and using knowledge resources, such as search engines and online databases, and emerging technologies such as cloud computing.</p>	<p><i>Privacy and Security</i></p> <p>demonstrate awareness that he/she has a digital footprint and that this information can be searched, copied, and passed on, and that he/she can take some control based on what he/she posts online</p> <p>use digital devices in a safe and secure way</p> <p><i>Making and Remixing</i></p> <p>effectively select and use digital tools for content creation</p>	<p>Insufficient (R)</p> <p>Beginning (1)</p> <p>Developing (2)</p> <p>Competent (3)</p> <p>Confident (4)</p>
<p>Understand</p> <p>Understand includes recognizing how networked technology affects our behaviour and our perceptions, beliefs and feelings about the world around us.</p> <p>Understand also prepares us for a knowledge economy as we develop information management skills for finding, evaluating and effectively using information to communicate, collaborate and solve problems.</p>	<p><i>Privacy and Security</i></p> <p>understand the concept of privacy in their everyday lives, and as it relates to using the Internet</p> <p>understand the concepts of persistence, replicability and searchability in networked technologies</p> <p><i>Making and Remixing</i></p> <p>show an understanding of the forms and techniques of the medium and genre:</p> <p>Panel-to-panel sequences:</p> <ul style="list-style-type: none"> • Moment-to-moment • Action-to-action • Subject-to-subject • Scene-to-scene • Aspect-to-aspect <p>Cinematography:</p> <ul style="list-style-type: none"> • Height • Distance • Static camera • Dynamic camera <p>Page layout:</p> <ul style="list-style-type: none"> • Panel size 	<p>Insufficient (R)</p> <p>Beginning (1)</p> <p>Developing (2)</p> <p>Competent (3)</p> <p>Confident (4)</p>

	Learning Expectations	Achievement
<p>Create</p> <p>Create is the ability to produce content and effectively communicate through a variety of digital media tools. It includes being able to adapt what we produce for various contexts and audiences; to create and communicate using rich media such as images, video and sound; and to effectively and responsibly engage with user-generated content such as blogs and discussion forums, video and photo sharing, social gaming and other forms of social media.</p> <p>The ability to create using digital media ensures that Canadians are active contributors to digital society.</p>	<p><i>Privacy and Security</i> exercise caution and responsibility with respect to privacy and security when creating online content</p> <p><i>Making and Remixing:</i> interact, collaborate, co-construct content, and publish with peers, experts, or others employing a variety of digital environments and media communicate information and ideas effectively to multiple audiences using a variety of media and formats contribute to project teams to produce original works or solve problems effectively apply the forms and techniques of the medium and genre:</p> <p>Panel-to-panel sequences:</p> <ul style="list-style-type: none"> • Moment-to-moment • Action-to-action • Subject-to-subject • Scene-to-scene • Aspect-to-aspect <p>Cinematography:</p> <ul style="list-style-type: none"> • Height • Distance • Static camera • Dynamic camera <p>Page layout:</p> <ul style="list-style-type: none"> • Panel size 	<p>Insufficient (R)</p> <p>Beginning (1)</p> <p>Developing (2)</p> <p>Competent (3)</p> <p>Confident (4)</p>