



SHELL  
EDUCATION

INFORMATION LITERACY

# Separating Fact from Fiction

FINDING  
INFORMATION

ANALYZING  
INFORMATION

USING  
INFORMATION

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# Finding Information



# Chapter 1

## Introduction to Information Literacy

“The flood of fake news, propaganda, rumors, and advertising that often masquerades as news has made it harder than ever to separate fact from fiction.”

—Center for News Literacy, Stony Brook University School of Journalism

([www.centerfornewsliteracy.org](http://www.centerfornewsliteracy.org))

### Information in Daily Lives








From the moment people wake up each day until the moment they go to sleep, they are bombarded with words, pictures, sounds, and smells, all presented in a dizzying array of media. Our increasingly difficult job is to make sense of everything encountered throughout the day. As educators, our focus needs to be on helping students become confident, critical thinkers and users of information from all the sources they encounter.

In his article, “Why Historical Thinking is Not about History,” Sam Wineburg writes, “We live in an age when going to the library means turning on our laptops and making sure that we have a wireless connection.” This is different from a generation ago when doing research involved actually leaving home to find books and articles about a topic. People would hold the physical references in their hands as they read the important information. He continues, “Only a small number of us were actual authors. Most of us consumed information that others had produced” (2016, 14). Today, anyone with an Internet connection can be an author. Anyone can write a blog, create a video, post a social media comment, or even edit online reference sites. Understanding where information comes from is a critical skill that many students today do not have. One of the major reasons students don’t have this skill is that adults of today haven’t necessarily mastered this skill either.

This is not surprising; the amount of online data and information one has to sort through is intense. The World Wide Web began in 1991 with one website. According to Internet Live Stats ([www.internetlivestats.com](http://www.internetlivestats.com)), a website of the international Real Time Statistics Project, by September 2014, there were over one billion websites. And there are millions of things one can constantly read or contribute to on the Internet.

## INTERNET STATISTICS

In August 2017, Internet Live Stats reported that in every second there are:

						
795 Instagram photos uploaded	1,269 Tumblr posts	2,697 Skype calls	7,704 Tweets	61,707 Google searches	70,220 YouTube videos viewed	2,611,203 emails sent

**Source:** *Internet Live Stats*—[www.internetlivestats.com/one-second/](http://www.internetlivestats.com/one-second/)

And the amount of data is increasing daily. There is no way to consume everything. One must be critical and responsible when navigating information online. To demonstrate to students the many sources of information, you may want to brainstorm with them various sources of information. Many sources combine text, images, and sound in a variety of ways. Use this list as a reference while you brainstorm.

<b>Sources of Information</b>		
advertisements	journals	plays
apps	magazines	political organizations
billboards	manuals	radio stations
blogs	maps	social media
books	memes	stories
charts/graphs	movies	television
church/scouts/teams/other groups	music	text messages
emails	newspapers	video games
family/friends/other people	paintings	videos
GPS	pamphlets	vlogs
instant messages	photographs	websites



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However, it's not only important for students to think about where they get information. They also need to always be thinking about what information they are sharing. In 2017, an American university rescinded acceptance offers to rising freshman based on social media posts the teenagers had made. Students need to understand "that the things you type, post and share behind a computer screen can still impact your life" (Ajayi 2017). Decisions made by young people can have far-reaching consequences with unexpected results. The information and activities in this book may help educate your students about the potential consequences of their behavior. "For your average teen, a quick class in the rules of online conduct could mean the difference between a youthful indiscretion kept private and a life derailed by immaturity that became public" (Ajayi 2017).

## Information in Schools

For K–12 teachers, the ultimate goal is to produce citizens who critically and actively think, assess, and apply their learning. Teachers want students to assimilate information and discard unusable facts. Good teachers enter the field of education and stay there because learning every day intrigues them. This becomes all the more important as the world shrinks into our phones. Today's citizens are dealing with a society where the available online information increases exponentially. Whereas people used to rely on editors and publishers to filter their news, today people must all be savvy enough on their own to recognize the sources of information.

Some organizations, such as the Metiri Group ([metiri.com](http://metiri.com)) and the Partnership for 21st Century Learning ([www.p21.org](http://www.p21.org)), have conducted research about what employers expect from students who hope to join the workforce. What both groups uncovered is the idea that while reading, writing, and mathematical fluency are extremely important, there are other skill sets that schools generally do not cover that are also vital today. These research groups agree that students need more practice with collaborating, thinking critically, engaging with a variety of sources, working with technology tools, and creating high-quality work.

- The Metiri Group and the North Central Regional Educational Laboratory (2003) studied the need for schools to teach twenty-first century skills in the digital age. They divided the necessary skills into four categories: digital-age literacies, inventive thinking, effective communication, and high productivity.
- The Partnership for 21st Century Learning (2007) has developed a framework of skills. They identify four key skills that people need to

succeed today: critical thinking, communication, collaboration, and creativity. These are called the 4Cs. Along with these key learning and innovation skills, workers in the twenty-first century need life and career skills and information, media, and technology skills. All this is on top of the K–12 content that is already being taught in schools!

The International Society for Technology in Education, which is more commonly known as ISTE® ([www.iste.org](http://www.iste.org)), has educational technology standards to meet today’s unique needs. It is gratifying to note that these standards support the twenty-first century skill ideas described above since they focus on transformative learning with technology. The chart on page 17 indicates the seven categories of their standards for students. (A version of this chart to display in your classroom is provided on page 194.)



#### ISTE STANDARDS FOR STUDENTS

- **Empowered Learner**—Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
- **Digital Citizen**—Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.
- **Knowledge Constructor**—Students critically curate a variety of

resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.

→ **Innovative Designer**—Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

→ **Computational Thinker**—Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

→ **Creative Communicator**—Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.

→ **Global Collaborator**—Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.

*Source: ISTE Standards for Students 2016, © 2016, ISTE® (International Society for Technology in Education), iste.org. All rights reserved.*

The idea that students need tools to evaluate what they see and hear becomes more compelling with recent research findings. Pre-existing knowledge—that is, what students come to school knowing or thinking they know—is a powerful force on learning. Therefore, it is imperative that teachers assess student knowledge about online digital literacy and their abilities to think critically about what they see online. This will help teachers determine what misconceptions need to be clarified as well as what new knowledge needs to be learned.

In November 2016, Sam Wineburg and others at the Stanford History Education Group ([sheg.stanford.edu](http://sheg.stanford.edu)) published a report, “Evaluating Information: The Cornerstone of Civic Online Reasoning.” During the previous 18 months, the research team had “prototyped, field tested, and validated a bank of assessments that tap civic online reasoning—the ability to judge the credibility of information that floods young people’s smartphones, tablets, and computers” (3). They developed an online analysis assessment tool that teachers can use to evaluate student knowledge. (An informative summary of the results of their research as well as a copy of the assessment tool is available at their website.)

## Effective Instructional Strategies

A number of effective teaching and learning pedagogies can be supported by the information and activities in this book. For example, Dr. Howard Gardner’s popular theory of multiple intelligences honors the many ways people take in and process information—the ways various people learn best. The multiple intelligences of learners can be supported by engaging students in work that allows them to move, draw, talk about their learning, and explore ideas, patterns, and a variety of forms of expression. As of 2017, there are eight intelligences identified by Gardner. The following chart illustrates instructional strategies that support Gardner’s multiple intelligences. For more information on Gardner’s theory of multiple intelligences, visit his official website ([multipleintelligencesoasis.org/about/the-components-of-mi](http://multipleintelligencesoasis.org/about/the-components-of-mi)).

#### MULTIPLE INTELLIGENCES

Type of Intelligence	What It Means	Instructional Strategies
Bodily-kinesthetic	Students learn best by touching or moving.	taking field trips; using artifacts; making models; using movement
Interpersonal	Students learn best by talking with others.	collaborative work groups; games or competitions
Intrapersonal	Students learn best by working alone.	setting goals; independent learning projects and reports
Linguistic	Students learn best by reading, writing, listening, and speaking information.	reading text; using audio recordings; talking or chatting with experts; using video; making recordings (such as a news broadcast); conducting debates; paired, small group, or class discussion
Logical-mathematical	Students learn best by analyzing information.	classifying or categorizing information; using graphic organizers; thinking abstractly; forming relationships between and among concepts; using charts or other numerical data such as dates
Musical	Students learn best using rhythm and	hearing music from a particular era; writing songs about information; putting content to a patterned beat (such as a

	melody.	rap)
Naturalistic	Students learn best by working with nature.	using artifacts; making connections to Earth science concepts (i.e., movement of populations and their impact on the environment)
Spatial	Students learn best by seeing or drawing.	taking students on virtual tours (such as battlefields); using video; using graphic organizers; creating visual representations of information (such as concept maps)

Project Based Learning enables teachers to provide opportunities for students to complete cross-curricular activities that challenge their thinking and deepen their understanding of a problem or task. Ideas throughout this book could be executed as meaningful projects. Chapter 10 brings it all together by building and evaluating different project based learning scenarios.

On the following pages are activities teachers can use to introduce the idea of information literacy to their students.

- Activity 1: Communication Time Line
- Activity 2: Information Then & Now
- Activity 3: Library Linkup

## *Activity 1*

### Communication Time Line

#### Introduction

In this activity, students study important milestones in the history of communication. Starting with the development of spoken languages, students explore other communication processes (e.g., smoke signals, written language, books and newspapers, radio, television, the Internet, smartphones, tablets, smart watches) and develop time line(s) of these developments.

#### Learning Outcomes

- Students will research milestones in communication throughout time.
- Students will reflect on the many information sources available today.

## Materials

- chart paper
- copies of *Communication Resources* (page 21; page21.pdf)
- copies of *Reflecting on Communication* (page 22; page22.pdf)

## Procedure

1. Introduce the idea of *communication*—one-to-one and one-to-many—and how people throughout time have coped with the need to know important information.
2. Have student groups brainstorm as many communication devices as possible. Suggest that students list the devices in groups, such as written, visual, audio, or by their earliest introduction. Have groups share their ideas and record them on chart paper.
3. Explain to students that they will be working together to create a large classroom time line that shows how people have communicated throughout history. Form small groups that can work together to research the history and/or various time periods. Then, distribute copies of *Communication Resources* (page 21). Tell students to use these sources and others they find to explore communication and technology time lines.
4. Have the groups work collaboratively to share what they have learned. Guide students as they collaboratively create a class time line. Have students create a physical time line to post on the classroom wall or develop a digital time line. If you have a particularly large class, you might consider creating more than one time line.
5. Suggest that students draw illustrations of the communication sources they identify and include them on the time line(s).
6. Distribute copies of *Reflecting on Communication* (page 22). Ask students to use this sheet to make lists of all the ways people currently share and take in information. Have them also list ways that people may do so in the future.

## Talk About It!

- As students explore different kinds of communication over time, discuss the importance of communication in today's classrooms and for today's students.

## Extension

- Ask students to share their ideas about communication needs of the future. Have them add their predictions to the time line(s).

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Communication Resources

**Directions:** Use these sources to explore communication and technology time lines.

Website Name	Website Address
A History of Information Technology and Systems	<a href="http://tcf.ua.edu/Classes/Jbutler/T389/ITHistoryOutline.htm">tcf.ua.edu/Classes/Jbutler/T389/ITHistoryOutline.htm</a> <a href="http://tcf.ua.edu/Classes/Jbutler/T389/ITHistoryOutline2.htm">tcf.ua.edu/Classes/Jbutler/T389/ITHistoryOutline2.htm</a>
A Short History of Radio	<a href="http://transition.fcc.gov/omd/history/radio/documents/short_history.pdf">transition.fcc.gov/omd/history/radio/documents/short_history.pdf</a>
Encyclopaedia Britannica—History of Technology	<a href="http://www.britannica.com/technology/history-of-technology">www.britannica.com/technology/history-of-technology</a>
PBS—Hieroglyphs: Say What?	<a href="http://www.pbs.org/wgbh/nova/pyramid/hieroglyph/">www.pbs.org/wgbh/nova/pyramid/hieroglyph/</a>
NASA—Communications Satellites: Making the Global Village Possible	<a href="http://history.nasa.gov/satcomhistory.html">history.nasa.gov/satcomhistory.html</a>
Shortel—The History of The Federal Communications Commission (FCC)	<a href="http://www.shoretel.com/history-federal-communications-commission-fcc">www.shoretel.com/history-federal-communications-commission-fcc</a>
History.com—The Invention of	<a href="http://www.history.com/topics/inventions/invention-of-the-">www.history.com/topics/inventions/invention-of-the-</a>

the Internet

[internet](#)

ThoughtCo.—The  
Early History of  
Communication

[www.thoughtco.com/early-history-of-communication-4067897](http://www.thoughtco.com/early-history-of-communication-4067897)

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Reflecting on Communication

**Directions:** Make a list of all the ways people currently share and take in information. Then, think of ways that people may do so in the future.

### Today

- ▶ \_\_\_\_\_
- ▶ \_\_\_\_\_
- ▶ \_\_\_\_\_
- ▶ \_\_\_\_\_
- ▶ \_\_\_\_\_
- ▶ \_\_\_\_\_
- ▶ \_\_\_\_\_
- ▶ \_\_\_\_\_
- ▶ \_\_\_\_\_
- ▶ \_\_\_\_\_
- ▶ \_\_\_\_\_

### In the Future

- ▶ \_\_\_\_\_
- ▶ \_\_\_\_\_
- ▶ \_\_\_\_\_





## Activity 2

# Information Then & Now

## Introduction

In this activity, students examine the amount of information they encounter every day and compare it to the information their parents or other adults encountered as children.

## Learning Outcomes

- Students will interview adults about information sources of the past.
- Students will reflect on information sources available today.
- Students will make comparisons and reflect on today's possibility for "information overload."

## Materials

- optional: copies of *Interview Questions* (pages 24–25; [page24.pdf](#))

## Procedure

1. Review the time line created in the previous activity. Brainstorm as a class a list of information sources available today (e.g., books, TV news, websites, magazines, video conferences, blogs, social media). Have students discuss the kinds of information sources available to their parents and grandparents when they were students of the same age (e.g., radio, books, TV news, magazines, newspapers).
2. Have students work in pairs to develop questions they can ask people from an older generation about information sources available to them when they were in elementary or middle school. If you prefer, students can use the questions on *Interview Questions* (pages 24–25). The questions should touch on the following topics:
  - How did the older generation get their information when they were

younger?

- How did the older generation evaluate the information they received?
- What does the older generation feel about information sources available today?

3. Have students conduct individual interviews of their parents, grandparents, or other adults.
4. Working again in pairs, ask students to compile their information and develop short presentations about information sources then and now, the importance of access to information, and the skills needed then versus the skills needed now for evaluating available information.

## Talk About It!

- As students engage in intergenerational conversations, their understanding of aspects of their own lives grows deeper. Discuss what surprising things they learned as they interviewed their friends and family members.

## Extension

- Have students respond to the following question: *What information sources and/or communication processes will be developed in the future, and how should they be evaluated for credibility?*

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Interview Questions

**Directions:** Record answers to these questions as you interview someone from an older generation.

1. What information sources do you rely on most today (for example, the Internet, printed newspaper, social media)?  
\_\_\_\_\_  
\_\_\_\_\_

2. What was the most exciting new technology from your childhood?  
\_\_\_\_\_  
\_\_\_\_\_

3. What were your favorite things to do when you were my age?  
\_\_\_\_\_  
\_\_\_\_\_

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4. What have been the most important developments in communication in your lifetime? Why do you think that?

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5. How do you know whether you can believe what you see on TV or online today? How is this different from when you were my age?

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6. What advice do you have for kids today about how they should evaluate what they see on TV or online?

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7. What, if any, modern communication device do you think we should get ride of? Why?

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### Activity 3

## Library Linkup

### Introduction

In this activity, students learn more about what is available at their schools and within their communities to support learning. To help students get the most out of their library experiences, bridges need to be built between school facilities and local public libraries.

### Learning Outcomes

- Students will become familiar with school library resources.
- Students will become familiar with the resources of their public library.

### Materials

- copies of *Comparing and Contrasting Libraries* (page 28; page28.pdf)
- chart paper
- copies of *Library Information Sheet* (page 29; page29.pdf)
- optional: *Library Information Sheet Example* (page 30; page30.pdf)

## Procedure

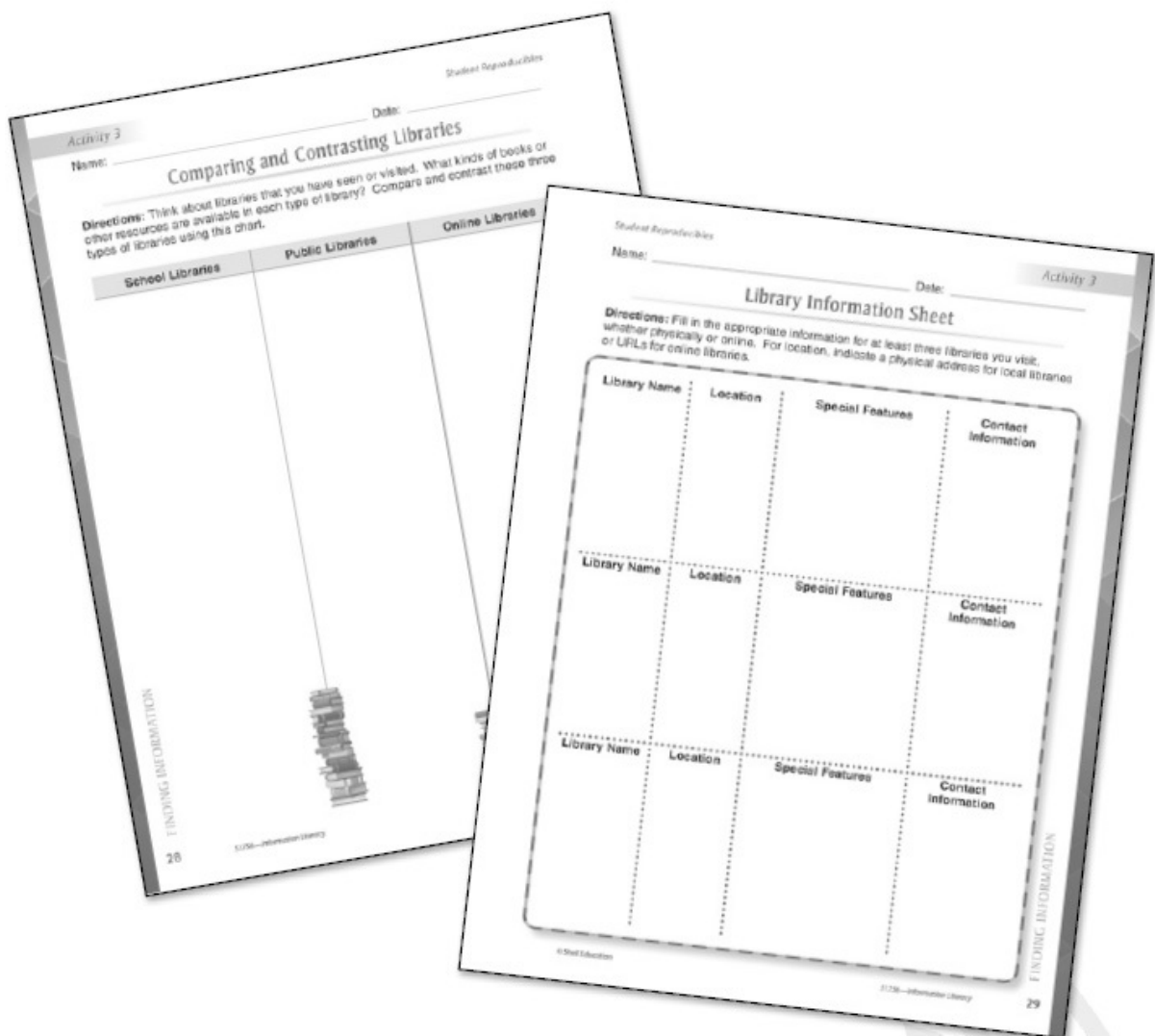
1. Engage students in a discussion about libraries. Ask students what role they think a library plays in a community. Find out how many students have visited the school library and a public library and how often. Ask them to share some of their experiences.
2. Have students work in pairs to complete *Comparing and Contrasting Libraries* (page 28). Review their ideas and record them on a class chart.
3. Invite your school librarian/media specialist into class to talk about what's available at school to support reading, research, and projects. Set up a visit or series of visits to the school library during which the librarian/ media specialist can familiarize students with the layout of the library and answer questions about how to locate good information, if this is not part of your school curriculum already.
4. If there is a public library close enough to the school, arrange for a visit. Make sure a librarian will be available to talk with your class about resources available to students. If appropriate, arrange for students to fill out forms for library cards before the visit so they can get cards and/or check out materials while they are there. If there is no public library that you can visit, challenge students to visit with their families. Or, check out your local library's website together and learn about what is available.
5. After the library visits, have students compare and contrast what is available at school and community libraries and when they might use each set of collections.
6. Add more information to a class copy of *Comparing and Contrasting Libraries* based on the information students determined during their visits.
7. Distribute copies of the *Library Information Sheet* (page 29). Tell students they will use the Internet to research local and online libraries. If needed, share the *Library Information Sheet Example* (page 30) with students. After completing the activity, students will have a document they can use when beginning their next assigned research project.

## Talk About It!

- As students study libraries, discuss the differences between physical locations and online libraries. Relate those differences to how books and ebooks compare.

## Extension

- Have students work in groups to design the perfect hybrid libraries that take the best parts of physical libraries and combine them with the best parts of online libraries. Allow time for students to create plans and then draw diagrams of the buildings and/or websites they would create.




Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Comparing and Contrasting Libraries

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**Directions:** Think about libraries that you have seen or visited. What kinds of books or other resources are available in each type of library? Compare and contrast these three types of libraries using this chart.

School Libraries	Public Libraries	Online Libraries



Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Library Information Sheet

---

**Directions:** Fill in the appropriate information for at least three libraries you

visit, whether physically or online. For location, indicate a physical address for local libraries or URLs for online libraries.

Library Name	Location	Special Features	Contact Info.
Library Name	Location	Special Features	Contact Info.
Library Name	Location	Special Features	Contact Info.

## Library Information Sheet Example

**Directions:** Fill in the appropriate information for at least three libraries you visit, whether physically or online. For location, indicate a physical address for local libraries or URLs for online libraries.

Library Name	Location	Special Features	Contact Info.
<i>Children's Center at 42nd Street- The New York Public Library</i>	<i>476 5th Avenue, New York, NY 10018</i>	<i>good children's section for birth to 6th grade</i>	<i>212-621-0208</i>

Library Name	Location	Special Features	Contact Info.
<i>National Archives</i>	<i>www.archives.gov</i>	<i>collections of records and documents created in the course of business by the U.S. government</i>	<i>online</i>

Library Name	Location	Special Features	Contact Info.
<i>My school library</i>	<i>12225 7th Avenue, first floor</i>	<i>fiction, nonfiction, uses Dewey Decimal system, nice librarian</i>	<i>Ms. Torres</i>



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