**Lesson Plan Template**

**Grade/Subject:** HIIM/Data Literacy  **Date:** **CT’s Initials: \_\_\_\_\_\_**

**Number of Students:** **School:**

**Check One**: **Day “Before”** \_\_\_\_\_ **Day “Of”** \_\_\_\_\_ **Day “After”** \_\_\_\_\_

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| **Title:** |
| **Lesson Goals** |
| **Central Focus:** The purpose of these lessons is for students to recognize the need for health and data literacy skills and to develop these skills to locate and access reputable sources for health information.  These are different skills but need to be integrated for accessing and using health information. Students also will develop skills to protect their personal health information.  There is various content on data literacy and being a digital citizen that can be incorporated into this lesson. This lesson is combining digital literacy with concepts of health literacy into a unit on health data literacy. By health data literacy, we mean that learning have the digital literacy skills to access and evaluate information as well as knowledge about health data access to recognize industry based problems and work-based learning and interact with industry professionals.  **Standards:**  Tennessee CTE standards for BioSTEM can be aligned with this lesson.  Partnership for 21st Century Skills Framework for 21st Century Learning  Health Literacy is a specific skill outlined in the P21 Framework Life and Career Skills; the framework also includes Information, Media and Technology Skills including information literacy and the ability to use and manage information. There are also standards on Information, Communications and Technology (ICT). This content can be incorporated with the content on ethical awareness which is included in the 21st century skills Humanistic Knowledge section.  Health Literacy  • Obtaining, interpreting and understanding basic health information and  services and using such information and services in ways that enhance  health  • Understanding preventive physical and mental health measures, including  proper diet, nutrition, exercise, risk avoidance and stress reduction  • Using available information to make appropriate health-related decisions  • Establishing and monitoring personal and family health goals  • Understanding national and international public health and safety issues  apply the Crosscutting Concepts and Disciplinary Core Ideas to explain their observations. In our professional development course for teachers, we will demonstrate how the lessons we are delivering map to the NGSS approach and content for use in their own classrooms. For example, we could  Using Work-Based Learning (WBL) in Your Classroom (these are from Computer Science but can be adapted to Health Informatics and Information Management  Sustained and coordinated activities that relate to the course content are the key to successful work-based learning. Possible activities for this course include the following. This is not an exhaustive list.  • Standards 1.1-1.2 | Invite an industry professional in to discuss safety equipment and  protocols.  • Standards 2.1-2.4 | Have the students partner with a professor on a real-life project.  • Standards 3.1-5.1 | Invite an industry professional in to discuss the history and various  occupations in the Information Technology field.  • Standards 6.1-6.3 | Have students do a virtual exchange with an industry partner to explain job terminology and concepts.  • Standards 7.1-8.6 | Have students work on-site with an industry cloud expert to do a real-  world project.  • Standards 9.1-9.3 | Discuss logical thought process with an Information Technology  Specialist.  • Standards 10.1-12.2 | Have students create an integrated project with interactions with  professionals.  • Standards 13.1-14.3 | Have students job shadow a cybersecurity specialist.  • Standards 15.1-16.3 | Have students job shadow a computer programmer  Career Exploration  3.1 Occupations: Research various occupations in information technology industries, such  as programmers, web designers, webmasters, networking administrators, computer systems administrators, telecommunications line installers, and informational security analysts.  Compose an informative table or chart that includes the following: work activities typically  performed, tools and technology used, nature of work environment, and the  knowledge and skills needed for success.  3.2 Professional Societies: Explore various professional societies related to information  technology and identify the services and benefits provided by each member. Create a  table that lists their purposes, benefits to membership, and any certifications affiliated with the organization. For example, investigate the Institute for Electrical and Electronics  Engineers (IEEE), Computing Technology Industry Association (CompTIA), and the Association for Computing Machinery (ACM)  Section 8 Emerging Technologies  8.5 Internet of Things (IoT): Explore the onset of the Internet of Things (IoT) and explain how  it is enabled by sensors, actuators, communication devices and computers that  exchange and process data and can interface with users in a most instinctual way.  Using a specific example, summarize in a graphic illustration or narrative how the IoT  combines information, automation, computation, software, sensing, and networking to  make traditional processes more efficient.  8.6 Statistical Efficiency and Quality: Consult internet forums, textbooks, industry journals, and other instructional materials to research the importance of developing and  implementing databases, data collection systems, data analytics, and other strategies  that optimize statistical efficiency and quality. Write a brief paper that discusses the  importance of these services in business today. Provide specific examples to support the  claims.  13. Social, Legal, and Ethical Issues  13.1 Social, Legal, and Ethical Issues: Drawing on multiple sources (i.e., internet, textbooks, videos, and journals), research the various social, legal, and ethical issues encountered by IT professionals. Using these findings, identify the roles and responsibilities one must consider while developing a prospective project or addressing an IT problem. For example, web developers and programmers must apply copyright laws and understand uses of open source software.  14. Cybersecurity  14.1 Data Security: Using various sources (i.e., internet, textbooks, videos, and journals), research and identify reasons as to why data security should be a priority to technology  professionals through demonstrating an understanding of information security fundamentals on Confidentiality, Availability, and Integrity.  14.2 Security Breaches: Demonstrate an understanding of the various security breaches that can occur with the Internet. Prepare a text explaining enterprise-level security, the  purpose of encryption, and the protocols that can be implemented to secure web sites.  Evaluate personal privacy issues versus employers’ rights to regulate computing resources.  14.3 Security Practices: Identify various security practices for computer and network  systems, such as how to control access to secured resources and computer resources. Give specific examples of methods that an administrator can use, like encryption techniques, basic input/output system (BIOS) features, and strategies for dealing with malware  **Objectives:**   * Identify and use resources that provide high-quality health information * Identify an example of a reputable source for health information. * Describe how various sources of information influence personal health behaviors |
| **Knowledge of Students** |
| **Prior Academic Learning and Prerequisite Skills:**  Define the following terms:   1. Dis-information 2. Mis-information 3. Data literacy 4. Health literacy 5. Literacy   **Scenario 1 (See PBL PowerPoint)**  Mario’s friend had a seizure at school and was taken to the hospital.  The doctor at the hospital told Mario and his mother that he needs to follow-up with a special doctor to get medication.  Mario’s mother does not have health insurance and is not sure exactly what type of doctor and where to go.    **What do we know**?  **What do we need to know**?  **Possible Hypotheses**:   * Discover how to access the patient portal to get records……….. * Get a medical alert bracelet for Mario   **Personal/Cultural/Community Assets:**  It can be difficult for people to use technology for health-related tasks when they:   * have lower [health literacy](https://www.jmir.org/2021/1/e14088/PDF) in general. * don’t have [access to](https://www.jmir.org/2021/1/e14088/PDF) or experience using a tech device like a smartphone or a computer. * don’t have access to [high-speed internet](https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2739054). * [have a disability](https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2768772) like not being able to hear or see well. * don’t have people in their homes [who could help them](https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2768772) use technology. * don’t have health technology apps or websites available in their [preferred language](https://www.theverge.com/21277936/telehealth-english-systems-disparities-interpreters-online-doctor-appointments). |
| **Supporting Students’ Learning** |
| **Planned Supports: available at** [**https://medium.com/learning-data/3-common-misconceptions-about-data-literacy-and-why-theyre-wrong-1e3029656954**](https://medium.com/learning-data/3-common-misconceptions-about-data-literacy-and-why-theyre-wrong-1e3029656954)  **Preconceptions, Common Errors, and Misconceptions:**   * Data literacy is just for data professionals   + Family need understand medical data, epidemic and pandemic data is also for everyone.   + no matter where you work or what industry or department you work in, your organization uses data, too. * Data literacy is one-size-fits-all.   We think about three different levels of data literacy:   1. Someone who is conversational with data can understand basic data concepts. 2. The person who is data literate is someone who can interpret, manage, and analyze data for a basic descriptive or diagnostic analysis. 3. The person who is data fluent. This is someone who has the skills to think strategically, design and conduct complex analyses, and clearly share insights to technical and non-technical audiences.  * Data literacy is just about the numbers and requires advanced technical skills. * Our definition of data literacy certainly doesn’t involve “the ability to calculate R-squared” or “the ability to write a Python script”! While numbers are obviously part of data, data literacy is about more than that. It’s about understanding the story and context behind the data, what the data means. |
| **Lesson Considerations** |
| **Grouping Strategies:** [**https://www.understood.org/en/articles/what-is-flexible-grouping#how\_do\_i\_put\_flexible\_grouping\_into\_practice**](https://www.understood.org/en/articles/what-is-flexible-grouping#how_do_i_put_flexible_grouping_into_practice)  Flexible grouping with students for short periods of time or to complete quick activities so they can practice. Give them feedback on what went well.   * Include partners, small groups of two students, and large groups of up to six students * Be heterogeneous (made up of varying abilities) or homogeneous (made up of the same ability) * ***Activity:***   *Have students brainstorm ways they can use data to make better decisions in their daily lives.*  **Differentiation:**   * **Modifications & Accommodations:**   Once you have your learning goal in mind, you can turn to student data to guide your decisions about how to group students. For instance, reviewing the reports/tests/exit tickets from a previous day can show you which students didn’t fully master the learning objective. You can then group them together to practice that skill. Or the responses to the data analysis activity can help you form groups for the day. The students who understood it can move on and those who didn’t can be grouped to get more support and practice. |
| **Lesson Plan Details:** |
| **Scenario II**  As Mario’s friend, you are scared and concerned about your friend.  You look at You Tube for information about seizures but there are so many types and you and Mario are not sure about exactly what kind of seizure he has.  Mario askes his mom about the papers from the hospital but they must have been thrown away.    **What do we know**?  **What do we need to know**?  **Possible Hypotheses**:   * Get to the web MD site….. * Identify triggers for seizures, medications and treatments as well as what to do if a friend has a seizure.   **Materials:**   * **Needed by Teacher:** * Recorded lecture from Dr. Reynolds * Health Data Literacy terminology worksheet * Navigating the Health Care System: Owning Your Own Health Checklist * **Needed by Students:** * Recorded lecture from Dr. Reynolds * Health Data Literacy terminology worksheet * Navigating the Health Care System: Owning Your Own Health Checklist   Get students thinking about misinformation by reflecting on what they think they already know about misinformation, and what they want to learn. This can be done as a Padlet board or have students work in pairs or teams to answer the questions.  **Lesson Introduction “Before”:**    Discussion questions   1. If you wanted to find out something about a health topic, where might you look? Who might you talk to? 2. What websites do you go to for health information? (These could include news sites, blogs, YouTube, or others.) 3. Who are the people or accounts you follow on social media? 4. Who are some people that you go to for health information that you trust? 5. Who are the people you know in real life whose opinions you trust? (Friends count!)   **Learning Activities “During”: See PowerPoint and video’s**  **Closure “After”:**  Why is health literacy important?     * 85% of executives believe data literacy will become as vital in the future as the ability to use a computer is today. * US workers who can demonstrate their data literacy skills can expect a 20% salary increase. * 78% of global employees are spending time every month investing in their own personal development. These employees are spending an average of nearly seven hours on personal upskilling each month at an average cost of $2,800 over the last 12 months   **Extension Activity:**  Community Partners  Invite a health information professional or security professional to discuss data literacy with students. Also could have someone come and talk about access to the internet and other digital resources |
| **Evidence of Student Learning:** |
| **Formative Assessment: TBA**   * **Objective(s) Being Assessed:** * **Feedback:** * **Modifications/Accommodations:** * **Evidence of Student Understanding:**   Is This Legit? (NIDA) (nih.gov) Available at:  <https://nida.nih.gov/research-topics/parents-educators/lesson-plans/legit-accessing-valid-and-reliable-health-information>  Complete the “Is this Legit?” worksheet (see below) and be prepared to discuss with students  **Summative Assessment:**   * **Objective(s) Being Assessed:** * **Feedback:** * **Modifications/Accommodations:** * **Evidence of Student Understanding**   Assignment is to find a test result from family (like a blood test) or find it online.  Discuss the test and why it was produced  Complete the 3 questions below in reference to the test     1. Are data valid so anyone can have an understanding of what data is relevant for your objectives? 2. Do you know how to interpret data so the results are useful and meaningful? 3. Do you know how to visualize the data and create a story that others can understand the data? |
| **Supporting Literacy Development:** |
| **Language Function:**  **Learning Task: use a Google feature for pronunciation** [**https://translate.google.com/?sl=auto&tl=en&text=health%20literacy%0A&op=translate**](https://translate.google.com/?sl=auto&tl=en&text=health%20literacy%0A&op=translate)  **Language Demands:**   * **Vocabulary/Key Phrases:** see <https://www.ncbi.nlm.nih.gov/books/NBK36292/> * **Syntax** * **Discourse**   **Language Supports:** |
| **Sources:**  **Research/Theory Addressed: Include kid friendly articles:** [**https://kids.britannica.com/students/article/human-disease/274019#**](https://kids.britannica.com/students/article/human-disease/274019#) |
| **NOTE: Attach any Relevant handouts, activities, templates, PPT slides, etc. that are referenced and utilized in this lesson.** |

IS THIS LEGIT WORKSHEET:

| **Question** | **Answer** |
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| **Thinking about your assigned source, do you have reason to believe this source has credible health information? Why?** How might your relationship with that source cause you to trust or disbelieve what they say? Does this source have a vested interest in you believing certain things, such as to sell you a or are they receiving or offering monetary (money) compensation to highlight certain products to their followers. |  |
| **Does the source make a very surprising claim?** Some people have a flair for dramatic stories or sensational opinions. News headlines and websites sometimes exaggerate health claims to catch readers’ attention. Does your source provide evidence for or facts to back up their claim? |  |
| **What is the original source of the information?** Where does your source get their information? |  |
| **Does your source show bias or slant toward a particular viewpoint?** Do they stick to “just the facts” or include personal opinion? Do they leave out key pieces of information, such as the health risks of taking—or not taking—an action? |  |
| **Can you find this information in at least one other location?** Information that is reliable and trustworthy can be sourced from multiple places. Check other webpages or websites for the same information. Talk to someone else about what you’ve learned. Do some digging and see if you can find at least one other source or story to match the one you first found. What did you discover? What is inconsistent (doesn’t match up) across the two sources? What does match up? Does the opinion of this source ? |  |
| **When you look at the website address (the URL), what is the ending?** Refer to the box “ID the Site” from earlier in the lesson. Remember that the ending of a URL provides clues about how to evaluate the content of a website. Is the ending .com, .edu, .gov, .net, or .org? What does this ending possibly tell you about who or what owns the website? |  |

As time permits, discuss the answers as a class, or ask the students to turn in their responses.

RUBRIC CREATION

You are an expert teacher and curriculum writer, skilled in creating assessments and evaluating student work. Your task is to create a rubric for my 12th-grade Science class studying Health Information and Informatics. My students are completing the assignment "how to read a hospital medical report", in which they find out what the seizure vocabulary terms mean on a patient report. Format the rubric as a chart and include a 5-point scale.

###### ChatGPT said:

### **Rubric for "How to Read a Hospital Medical Report"**

**Assignment:** Students will analyze a hospital medical report and define seizure-related vocabulary terms.

| **Criteria** | **5 - Excellent** | **4 - Proficient** | **3 - Satisfactory** | **2 - Needs Improvement** | **1 - Incomplete** |
| --- | --- | --- | --- | --- | --- |
| **Accuracy of Definitions** | All vocabulary terms are correctly defined with clear, precise medical explanations. | Most vocabulary terms are correctly defined, with minor inaccuracies. | Some vocabulary terms are correctly defined, but there are multiple errors or vague explanations. | Several vocabulary terms are incorrect or missing key details. | Definitions are mostly incorrect or missing. |
| **Application of Terms** | Clearly and accurately applies vocabulary to the context of the medical report. Shows strong understanding. | Mostly applies vocabulary correctly with few errors. | Some terms are applied correctly, but others are used incorrectly. | Struggles to apply vocabulary to the context of the report. | Does not attempt to apply terms to the medical report. |
| **Clarity & Organization** | Information is well-organized, easy to read, and logically structured. | Mostly well-organized with minor issues in clarity. | Somewhat organized, but difficult to follow at times. | Lacks clear organization, making it hard to understand. | Information is disorganized and unclear. |
| **Use of Medical Sources** | Uses reputable medical sources to support definitions and explanations with proper citations. | Uses sources effectively but may have minor citation errors. | Uses some sources but lacks thorough support. | Limited use of sources, with little evidence of research. | No sources used or cited. |
| **Grammar & Mechanics** | Writing is free of grammatical and spelling errors. | Few minor errors that do not affect readability. | Some errors that slightly impact readability. | Frequent errors that make understanding difficult. | Numerous errors that make the work unreadable. |

Creating a Rubric using Chat GPT-See AI for Education

[https://www.aiforeducation.io/prompts/rubrics#:~:text=In%20ChatGPT%20or%20your%20favorite,the%20information%20for%20each%20rubric.&text=You%20are%20an%20expert%20teacher,assessments%20and%20evaluating%20student%20work](https://www.aiforeducation.io/prompts/rubrics)