Introduction to the Five Main Classes of Microorganisms and Their Characteristics.

**MASTERY FOCUS**  **(PL-2, PL-3, I-1, I-6) Principle of Health Science**

**Essential Understanding:** The student recognizes the importance of maintaining a safe environment and eliminating

Hazardous situations. Student will understand that the Principles of infection control is essential to all health care workers, it provides a basic knowledge of how diseases are transmitted and its main emphasis is on prevention of disease transmission.

**Standards: What will students know, understand, and be able to do?**

**Objectives:**

1 Student will be able to identify the 5 main classes of microorganisms by describing the characteristic of each.

2. Student will learn to wash hands according to recommended techniques per the CDC.

3. Student will identify safety practices in all aspects of the health science industry.

4. Student will identify wellness strategies for the prevention of disease.

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| --- | --- |
| **TEKS**  1 (D), 1 (E), 9 (B), 10 (A) | **ELPS**  [Boggle's World ESL Activities | Project SHINE](http://www.google.com/url?sa=t&rct=j&q=boggle%20esl&source=web&cd=13&cad=rja&uact=8&ved=0CFQQFjAM&url=http%3A%2F%2Fwww.projectshine.org%2Fboggles-world-esl-activities&ei=9OPCVIL2LMy0yAT264GACA&usg=AFQjCNF6zIibOBHiW04Ye4oWHVS43km9Wg)  ( |

**Key Vocabulary: What key terms will my students need to understand?**

**Key Terms:** Bacteria

Microorganism Bacterial Infectious Diseases

Antisepsis Sterilization

Asepsis  Contaminated

Pathogens Autoclave

Fungi Nosocomial

Pathogens Viruses

Autoclave Hepatitis B & C

ProtozoaStaphylococcus aureus

Rickettsiae Nonpathogens

**Assessment Plan:** Discuss knowledge of key terms.

Do Now: 1. Quiz students on Safety standards, universal precautions, and

personal protective equipment learned semester I.

2. The main classes of microorganism and infection control.

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**LESSON CYCLE** I. Students Will learn the key terms and the Characteristics of bacteria, rickettsiae, fungi, protozoa, and viruses. Why It Is Important? (**The students need to know the meaning of the key terms and the characteristics of pathogens, to understand microorganism. Health Science students must learn the fundamentals of what is needed to prevent the spread of diseases and why the principles of infection control is essential to all health care workers).**

II. Introduction to New Material –

1. **Students will view and discuss a PowerPoint on infection control and the main classes of microorganism (bacteria, fungi, viruses, rickettsiae, and protozoa.**
2. **Review content in text book and handouts**
3. **Review content related to lesson per website and links.**
4. **Presenter from Houston City Health Department to review vaccines and diseases.**

**(**2/ 2-15 thru 2/4/15).

III. Guided Practice

1. **Teacher will clarify and check for understanding by asking open-ended questions.**
2. **Teacher will pace the classroom to clarify misunderstanding.**
3. **Teacher will introduce content to be learned and review key terms.**
4. **Teacher will demonstrate skill practices.**
5. **Teacher will review agenda and objectives daily**
6. **Teacher will review resources and equipment needed to problem solve student centered lessons**.

IV. Independent Practice

1. **Student to define and write key terms.**
2. **Student to take notes from PowerPoint.**
3. **Student to complete homework**
4. **Student to complete worksheets in class**
5. **Student to monitor petri-dished for bacteria or fungi growth**
6. **Groups will work independently to study bacterial infectious diseases.**

V. The Closing – **Classroom discussions to check for understanding. Ask students did we meet and learn the objectives for the day. Play kahoot or other games to check for mastery. Clarify misunderstanding.**

**How will I engage my students in learning? How will I lead my students to mastery?**

**CHECKS FOR UNDERSTANDING (I-2)**

|  |  |
| --- | --- |
| 1. **Engage and Connect (30-min):**   **Do Now:** 15 minutes  Hands on group activity  Independent practice  Online group studies. | Review Do Now  Clarify misunderstanding  Allow students to demonstrate |
| 1. **Introduce New Learning (15-20 min):**   PowerPoint- Review Microorganism and standard precautions.  Demonstrate skill practice  Explain why infection control protects healthcare workers and patients by preventing the spread of diseases.  Introduce nosocomial infections. | Student provide feedback by demonstrating skills.  Student are able to voice why lesson is important during guided questions |
| 1. **Lead Guided and Independent Practice (25 min):**   **Guided Practice (10 min):**  Demonstrate and explain why assignment is important for health care workers to be knowledge able of the disease process and how the lesson  Content learned will help spread infectious diseases and eliminate hazardous situations.  **Independent Practice (25-30 min):** | Clarify misunderstanding. By asking questions and reteach material as needed.  Problem solve case studies to complete  the chain of infection.  Grow bacteria and fungi  Practice putting on and removing sterile gloves. (**completed**)  Complete lab worksheet  Complete homework |
| 1. **Close the Lesson and Assess Mastery (10 min):** | Check understanding by open ended questions involving all students.  Play Kohoot.  Exit ticket  Quizzes  Test |

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**DIFFERENTIATION (I-3)**

**How will I scaffold and/or accelerate learning? For whom? How will I group my students?**

**SCAFFOLD:** Nova hands on activity “Which wash win” **Internet research, Introduce slides of bacterial infections as Staph and nosocomial infections (infections acquired while hospitalized.)**

**ACCELERATE:** Have students read case studies out loud and use prior knowledge learn to problem solve.

**Group activity-** Student test hand washing techniques (hand sanitizer, soap, antibacterial soap, wash with just water, control-no water (will swab hands and grow and record growth of bacteria and fungi over a 4 day period.)

**Answer questions and review slides of bacteria causing diseases.**

**GROUP:** Group according to academic level (high performing students grouped with lower performing students. (4-5 students per group). ESL student grouped with a Spanish speaking student.

**LOGISTICS** **(I-6, I-10)**

**What materials, resources, and technology will I need to prepare and arrange?**

* Text Book
* Nova Handouts “Wish wash wins”
* Petri-dish
* Soap
* Hand sanitizer
* Antibacterial soap
* Tongs
* Q-tips
* Lab-top (technology based lesson)
* [www.medininet.com/bacterial.../article.htm](http://www.medininet.com/bacterial.../article.htm)
* Diversified Health Occupational Powerpoints
* Case studies
* Chain of infection template
* Beets