­­California Crosspoint Academy

Expected Schoolwide Learning Results

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| Summary Sheet | |
| Teacher: Jie Ma | School Year: 2018 – 2019 |
| Subject: Physics |  |
| ESLR: Scholarship | |
| Preplanning | |
| Goal: | Plan: |
| By the end of the lesson/unit/activity/etc, the students will……..(*be sure that it is related to the focused ESLR(s) and your subject. Do not restate the ESLR or its descriptor. Express in your own words.*)  Student will   1. Distinguish if a statement is a scientific hypothesis and understand the role of scientific hypotheses in science research. 2. Have a broad base of knowledge about scientific laws. 3. Think logically and critically about science news and be able to critique different view point. | (How will you achieve this goal? Describe your action plan)   1. Students will learn the discovery of different physics concepts and how the concepts were developed throughout the years. 2. Students will learn multiple real-life applications of a physics law in all unit. 3. Students will write lab reports after each lab. |
| Evidence: | Pre-Assessment: |
| (What evidence, ie data, will you collect? When will you collect it?  If applicable, include evidence or data before implementing plan as a baseline.)   1. Homework 2. Take notes during class discussion 3. Collect student presentations | Comment on where the students are currently. Describe where they are using examples, behaviors, data, and other evaluative instruments.  For each unit, students will start with a reading assignment with guided questions. Students will participate group activates in class along with teacher’s lecture.  For example, in the global warming lesson, all students have heard about the “global warming”; however, many students do not believe global warming is real and do not know the scientific evidences. |
| Formative Assessment | Summative Assessment |
| How are you assessing your students to inform instruction in order to improve student learning and engagement? What strategies are you using daily to assess student learning?  Indicate how frequently you will check for understanding and analyze in Analysis section.   1. Class discussion, cold calls 2. Kahoot (especially useful to check lower level thinking) 3. Chapter summary (list learning object and examples on posters) 4. Lab and per lab | (How will you measure if your goal has been achieved?)  What does it look like?   1. Lab reports 2. Quizzes 3. Tests 4. Presentation on current or historical event |

Analysis and Reflection

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|  | Evidence 1 |
| Analysis:  Analysis Data from the evidence: scores; percentages; times; nothing evaluative. Include the date) | Students learned the definition of scientific hypothesis practice. Here is the prompt:  Q1. What is the requirement for a statement to be a scientific hypothesis? (2pt)  Q2. Give two scientific hypotheses?  Q3. Give one statement fail to be a scientific hypothesis because it is speculation. (2pt)  Q4. Give one statement fail to be a scientific hypothesis because there is no way to prove it wrong.  Examples of students answer (students submit homework on Schoology)   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | Q1 | Q2 | Q3 | Q4 | | S1 | The requirement for a statement to be a scientific hypothesis is that the hypothesis must be testable. | 1. Water and oil can mix when put together in a container.  2. A pencil will not break if you throw it off a high place. | I’m always late to school because I don’t wake up on time. | There is a planet somewhere in the universe just like this one | | S2 | For a statement to be a scientific hypothesis, it must be possible to prove the hypothesis wrong.  Additionally, it must be under the general nature of science. | Oil is denser than water.  The mitochondria is the powerhouse of the cell. | Humans came from evolution. | There is an invisible star that gives energy to the sun. | | S3 | It has to be related to science and able to be tested out by an experiment. | Dropping water drops on the center of the penny can help the penny hold more water drops. | Vaccines cause autism | Physics is a better subject than Chemistry | | S4 | For a statement to be a scientific hypothesis that it is an educated guess and has not been demonstrated  by an experiment yet. | If I brush my teeth every day, I won't get cavities | If I water my plants twice a day, then my plants will grow twice as much as watering the plant once a  day. | No one can run faster than a cheetah. | | S5 | The requirement for a scientist hypothesis is an educated guess that is only presumed to be factual until  demonstrated by an experiment. | If I drop a book and a pencil at the same time, then they both will hit the ground at the same time. If a  person doesn't drink water, then they won't survive. | Broccoli is the best vegetable | My friends dog likes me better than it likes my brother. | |
| Reflective summary: (Reflection based on analysis – what worked) | Many students believed that scientific laws are the same regardless of time and location. However, as human continue study about the universe, facts and laws can change. After science discovered the protons and neutrons, atoms are no longer the smallest unit of particles. This assignment will help students understand scientific hypothesis has to be testable. It also helps them to understand the relationship between science and religion)  80% of students got full credit for this homework. Most students understand the definition of scientific hypothesis and can give correct examples. However, s3 was absent during the lecture and thought that scientific hypotheses must be correct and reasonable statements, which is a common misunderstanding.  This is a good practice and meet the NGSS practice standard “asking questions and defining problems”. Students will apply this knowledge in all their science reports. |
|  | Evidence 2 |
| Analysis:  Analysis Data from the evidence: scores; percentages; times; nothing evaluative. Include the date) | Greenhouse effect lab report (see attachment) |
| Reflective summary: (Reflection based on analysis – what worked, what didn’t, what you would change or keep to improve student learning, etc) | Many citizens including political leaders believe “Global warming is fake news”. The two most important components for greenhouse effect are “greenhouse gases and reradiated infrared light”. They are all invisible by human naked eye. The purpose of the Greenhouse Effect Lab is to create two simulations of the Earth’s atmosphere with different concentrations of carbon dioxide gas in order to experimentally determine the effects of increased carbon dioxide on temperature. They also analyzed public data from NOAA Earth System Research Laboratory. In the end of the unit, all students are confident to explain why global warming is not a fake new. However, many students still want to believe global warming is fake and they commented that “if people do not believe global warming, they would not take actions plan. They do not want to take the responsibility of climate change, as a result, they will believe global warming is a fake news” |
|  | Evidence |
| Analysis:  Analysis Data from the evidence: scores; percentages; times; nothing evaluative. Include the date) | Physics and Political Science Presentation (see evidence) |
| Reflective summary: (Reflection based on analysis – what worked, what didn’t, what you would change or keep to improve student learning, etc) | Students can pick any historical/current events that they are interested in. They analyzed the science behind it. This student selected 911 and analyzed the reason behind the collapse of the buildings. During the presentation, he reviewed the definition of kinetic energy, power, conservation of energy and conservation of momentum.  Students need to research from different resources and connect concepts they learned though out the school year. |