Lesson Plan- Understanding the importance of properties

Course: Grade 9 Science

Outcomes:

S1-2-11- Investigate properties of substances and explain the importance of knowing these properties

Materials needed:

* Worksheets
* See lab for materials needed

Assessment:

* Collecting the article they would make better.
* Answer to lab questions
* Watching and assessing how they answer questions

Activate:

1. When the students come in have the question on the board. Get them to write it down and think of answers
   1. Do you think it is important to know what mood your friend is in before you ask them for a favor?
2. When complete ask the students what they think
3. Now try and draw the connection between knowing someone’s mood and knowing what properties you need to make an effective profit
   1. Say things like: do you think it important to know what you are making so you can select proper materials?
      1. Like building a bridge? Or building a pillow?
      2. What are the different properties that you need
   2. Ask them how many properties can they name? get them to raise their hand and answer
   3. Write what they say on the board

Acquire:

1. Get them to collect worksheet
   1. Tell them to match the properties to their definition
   2. These are their vocabulary words that they need to know for the test they may think there is a lot but they are mostly straight forward)
   3. If they finish early tell them to work on memorizing some of them. This will come in handy later.
   4. When most of the students are done. Go through the answers. Tell them it is important to have the right answer
      1. You are welcome to ask the students for their answers
      2. But make sure you clearly give the right answer and read out the definitions (it is important the students hear the answers again.
2. Remind the students that these properties are important to figuring out how we use something.
   1. Remember bridge and pillow
3. Tell them one example they don’t really have to understand completely now but that is really important is pH (if something is acid or basic)
4. Get them to get the lab manual, go through it explaining everything and being detailed as this experiment is supposed to be fun and not a concept they can completely understand yet
5. Do the demo of the bleach.
6. Get the students to do the experiment
7. Go through the questions with the students helping them out lots
   1. They will hand this in
8. Then get the students to collect the elements and properties work sheet. This one they can work together or alone… do the first one together
9. Once again when done go through the answers, the students may have different answers as long as they are reasonable that is okay

Apply:

1. Now hand out some stories. Tell them a brief explanation of each.
   1. Tell them you are going to split the groups into 3, go through pointing these groups out.
   2. Each person is going to read one story
   3. Then the groups will come together and have 5 minutes to explain each story briefly to
      1. Write on the board that they will discuss:
         1. What element or product was discussed?
         2. What benefit or problems did the element cause?
         3. What has changed or will change because of the discovery?
   4. Now get the groups together to discuss about the story and about the concerns the element caused or the benefit the plastic is causing and why.
   5. Then bring it to the front and ask each group about the story and what they got from them.
      1. What did they learn,
      2. what did they like
      3. What did it make them think about
      4. Are their any other products or examples like this they can think about
   6. Having a debate after each one about the importance of knowing the properties
2. Get them to take out the paragraph writing paper. Tell them you want them to think of object they think could be improved by using a product with a different property
   1. This can be a real element that they know the properties of or a made up element they think they could add
   2. Go through the writing paragraph paper with them highlighting what you want included
   3. Tell them it will be worth 5 marks and needs to be handed in by the end of class
3. If done early give crossword or scramble
4. Or play a round of bingo (see Bingo explanation sheet)

Lesson: Difference between chemical and physical properties

Class- Grade 9 science

Outcome:

* S1-2-12-Differentiate between physical and chemical changes

Materials needed

* Look at lab manual
* Power point
* Videos
* worksheets

Assessment:

* Work sheet as formative
* Lab evaluation questions

Activate

1. As they come in get them to answer the question?
   1. How would you know that a chemical change had occurred not just a physical change?
   2. See what kind of answers you get
   3. Vshow the video on the first slide
2. Ask them for their answers

Acquire

1. Get out a piece of loose leaf to write notes on
2. Then go through the Power point notes emphasizing the words they need to know
3. Get them to write the notes on looseleaf
   1. Asking them which is which and what indicates it is a chemical or physical change
4. Show the video after to help them understand
   1. On the last slide
5. Give them work sheet and tell them to work alone.
6. Go through the worksheet when it is done, encouraging them to answer
   1. Tell them they will have some like this on the test so this should go in their study section

Apply

1. Tell them we are going to do an experiment called what am I ,
   1. Go through the experiment explaining what they will be doing then let them work on it
   2. Explain that the copper will, in one of them be cleaned because it dissolves in the salt and vinegar solution oxidized copper is soluble in this solution.
   3. Get them to do the questions after
2. Then ask them if any know what MSDS is?
   1. What do they know about it
   2. What information does it give them
      1. Heath risks
      2. Proper handling
      3. Brief chemical and ohysical properties
   3. Tel them tomorrow you are going to be doing a lab using some more risky material so you want them to do the get sme information about the MSDS now.
3. Then do MSDS worksheet for tomorrows class
   1. On worksheet is the websites they can look at for all the information
   2. In group booklet is summary of information
4. Give crossword or scramble or concept frame or physical or chemical extra worksheet

Lesson Experiment to see chemical and physical changes

Class: Grade 9 Science

Outcome: S1-2-13 experiment to determine indicators of chemical changes

Materials

* What you need for lab
* Prize for bingo
* Bucket for bingo clues
* Extra worksheets

Assessment

* Lab report

Activate

1. Collect lab and give overview of day
   1. Review test
   2. Bingo game for definitions
   3. Lab
   4. Extra worksheet to help for quiz prep
2. As the students come in have the question on the board:
   1. What are the indicators of a chemical reaction?
3. Get the students to come up with answers to the question(they should have the answer in their notes form yesterday)
4. Open power point and go through the test review explaining extensively about what will be on the quiz (they should write this on loose leaf)
5. Explain the test contains
   1. 10 matching,
   2. 6 is it chemical or physical,
   3. and know that page got on first day of what properties make something good for a substance,
   4. indicators of chem or physical change
6. Go through the one paper from Mondays class
7. Then get them to go through what should be in the study section:
   1. Ask them what should be in it
      1. Notes
      2. Matching sheet
      3. Physical or chemical
      4. Properties sheet
      5. And notes from 5 minutes ago
8. Tell student that were missing that they can pick up sheets but are responsible for getting their own notes from a neighbor because they did not come at lunch yesterday.
9. Then say we are going to play a quick game of Bingo to help earn the definitions
   1. Bingo with definitions
   2. When winner, must answer chemical or physical question
      1. Look at BINGO explanation sheet for more detailed rules

Acquire

1. Now tell them we are going to do an experiment, they have to wear gloves and goggles from this experiment
2. Get them to collect the sheet
3. Tell them we are going to create a formal lab report for this lab
4. Go through the first part getting them to fill in everything up to Material
5. Then get them to prepare and do the experiment filling in the data collection part
6. Explain the groups and number the members explaining that you are going to call on these numbers to collect the stuff needed for the experiment

Apply

1. Then get them to answer the discussion question and do the conclusion on their own.
2. If extra time play another round of bingo.
3. If extra time give cross word, word scramble or concept frame
4. Let them pick up extra worksheet to help them study if they want. They are not for marks

Lesson- Quiz

Course: Grade 9 Science

Outcomes

* S1-2-11- Investigate properties of substances and explain the importance of knowing these properties
* S1-2-12-Differentiate between physical and chemical changes

Materials:

* Quiz
* worksheets

Assessment

* Quiz

Activate

1. Have on Board: Quiz today as students come in
2. When everyone is settles ask the students what is the test on today?
3. Get them to give these answers:
   1. Chemical properties
   2. Physical properties
   3. Chemical vs physical changes
   4. Indicators of physical and chemical change

Apply

1. Hand out quizzes reminding the students they need to be quiet
2. When the students are done and hand it in they can grab a teacher evaluation page and the remembrance day worksheet
3. Then watch video and have discussion after each section
4. Wait to be called down for the assembly