

Lesson Plan Template

Content standards:

Investigation and Experimentation

6. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- b. Develop a testable question.
- c. Plan and conduct a simple investigation based on a student-developed question and write instructions others can follow to carry out the procedure.
- d. Identify the dependent and controlled variables in an investigation.
- e. Identify a single independent variable in a scientific investigation and explain how this variable can be used to collect information to answer a question about the results of the experiment.
- f. Select appropriate tools (e.g., thermometers, meter sticks, balances, and graduated cylinders) and make quantitative observations.
- g. Record data by using appropriate graphic representations (including charts, graphs, and labeled diagrams) and make inferences based on those data.
- h. Draw conclusions from scientific evidence and indicate whether further information is needed to support a specific conclusion.
- i. Write a report of an investigation that includes conducting tests, collecting data or examining evidence, and drawing conclusions.

Learning objectives:

The students will learn how to construct an experiment with a testable question, independent, dependent and controlled variables, and be able to conduct the experiment. The students will also learn how to record their data, construct a table from their data and draw conclusions from their data.

Formal and Informal Assessments:

The informal type of assessment that we will be using is in the form of a worksheet. This worksheet will allow students to record their data, such as time and distance, when testing the prototype.

Instructional Procedures:

Hook:

The hook for the lesson will be presented in the group introductions. During the group introductions we will first ask the students if they have ever been on any type flying device, at this point we will also show them a poster of the different flying devices that exist. Rene will then talk about her experience sky diving (possibly show the video or pictures of her experience) and allow the students to ask her questions.

Lesson Opener:

To open the lesson I will tell the students that Renee is looking for a parachute that falls at a slow speed and can hit or come close to a target, and she wants them to help her find the material of the chute that will accomplish both of these goals. To accomplish this goal I will explain to them that they will explore using different materials for the chute such as tissue paper, tissue or any other kind of material, keeping the rest of the variables constant. At this point I will go into what keeping a variable constant means.

Practice:

I will explain to the students that today they will be working in pairs on in groups to make a prototype of a parachute. This means that they will make a standardized parachute, which is what they will base the parachute they make next time off of. The reason why they will make a standardized parachute before changing any of the variables is to think and discuss how they can make the parachute better. Next I will show the students a prototype of the parachute they will be making and explain the specifications for the parachute. After explaining the directions to the students I will let them begin working in their groups or with their partner to build the parachute. Once everyone has built their own parachute the next step is to fly the parachutes using a timer to measure the speed and a target to measure the accuracy (which will be recorded on the worksheet).

Closure:

To close the lesson I will explain to them that before the next time we see them, their job is to brainstorm of different materials that will make the parachute travel the slowest and the most accurate. To get them thinking I will ask for a few ideas of different materials they could change.

Differentiated instruction/ Accommodation strategies

The following are the teaching strategies I plan to use for students who have identified educational needs:

Diverse Learner Elements:

Visual Learners:

For students that learn visually I will provide pre-made parachutes for them to look at and examine when making their own parachutes. I will also use visual aids, such as posters to assist their learning.

Auditory Learners:

For auditory learners I will make sure that I speak clear, pronunciation my words, use simple vocabulary and repeat anything that they need repeated.

Visual Impairments:

For students with visual impairments I will either make sure that they are sitting in the front of the classroom or when speaking and demonstrating I will make sure to walk around the classroom so that everyone has an equal chance of seeing.

ADD/ADHD:

For students with ADD or ADHD I will make sure that my teacher's assistant and I keep a close eye on them. I will also make it a point to keep my lectures short and straight to the point.

Kinesthetic/Tactile Learners:

For the students that learn kinesthetically I will make sure to do lots of hands on activities, such as making their own parachute and testing the flight of their own parachute.

Cooperative Learning:

Students will work in partners or in pairs when working on their parachute to get as much input as possible.

SDAIE Strategies:

Active Learning:

Throughout the lesson students will be predicting, observing, recognizing, collecting data, creating and planning their own experiment, and constructing their own conclusions.

Assessing/Tapping Prior Knowledge:

The students will be able to relate their prior knowledge about flying devices to this activity.

Building New Knowledge:

Students will come to new conclusions or revise their previous conclusions of the factors that make an object fly successfully.

Collaborative Problem- Solving:

To encourage work proficiency, students will be placed in groups or with a partner.

Demonstrating and Modeling:

As a teacher, I will demonstrate how their prototype parachute is suppose to look and how they are suppose to construct it.

Questioning Techniques:

To monitor student learning and help assess prior knowledge on a topic, I will ask students questions instead of answering their question with an answer.

Resources and Materials:

The materials we plan to use include the following:

- string
- stopwatches
- washers
- different kinds of material for the parachute
 - o tissue paper
 - o plastic table cloth
 - o tissue
 - o etc.
- scissors
- rulers