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Analysis of the Uses of Simple Planes in Everyday Life

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ABSTRACT

The aim of this research is to examine and analyze the role of simple airplane material in learning science at MI/SD level. The method used is qualitative with a descriptive approach. This research aims to analyze the use of simple aircraft in everyday life. A simple machine is a tool used to change the force exerted on an object into a larger or smaller force. The research obtained states that a simple machine consists of an arrangement of simple tools to help with daily activities which include levers, inclined planes, pulleys and wheels with axles. This research can help readers understand the importance of simple machines in everyday life and how to use them effectivelyn.

Keywords:
Simple plane, Life, pulleys, axles.

INTRODUCTION

Education is a form of implementation of the goals expected by a nation as a form of preparation for future development (Annafi & Kurniawati, 2017). Learning outcomes are a form of change in attitudes and behavior (Kurniawati & Atmojo, 2017). Natural Sciences is one of the main subjects not only in Indonesia but throughout the world. Natural Sciences is a subject that studies the universe, therefore natural sciences are used as a measure of a country's progress. The progress of natural science is researched by institutions called TIMSS and PISA (Andriyani & Kurniawati, 2016).

Science is defined as a human effort to learn more deeply about the universe through precise observations on targets, using correct procedures, and explaining it with original and firm reasoning so that correct conclusions can be drawn (Sutrisno, 2007). Physics education is a part of science that is related to mastering abilities in the form of facts, concepts or principles, but is also a process of discovery. (Iman & Khaldun, 2017). Simple plane material is often associated with everyday life because in this simple plane it always coexists with everyday life (Fatonah & Assingkily, 2020). Simple aircraft are one of the technological inventions that have made a major contribution to human life since ancient times. In everyday life, simple machines have been used for various purposes such as household purposes to complex industrial applications.

In everyday life, simple machines are important components in everyday equipment. Not only useful in domestic life, simple aircraft also have a significant role in various industries. The use of simple aircraft in everyday life has provided an important foundation for the development of modern technology. Simple aircraft are an important element in people's daily lives, both in household and industrial contexts and as a basis for future technological innovation. Simple aircraft have been an integral part of human life since ancient times. The basic concept of a simple machine is the use of force to do work. Thus, simple aircraft prove their wide use in various aspects of daily life. Simple machines are grouped into four types, namely levers, pulleys, inclined planes and pivoted rods. Simple aircraft are very useful tools in everyday life. By using simple machines, human work will be easier and productivity will increase.

METHOD

This research uses literature studies which include theories related to the research questions. The main goal is to develop theoretical aspects and practical benefits. This research is carried out by

collecting research objects or library data or for the purpose of conducting problem-solving research which is basically based on a review of library materials. Sources of information used include textbooks, scientific journals, research results in the form of the internet and other relevant sources of information.

RESULTS AND DISCUSSION

Aircraft are all instruments that make it easier for individuals to carry out work. Airplanes are not always technologically sophisticated devices. Simple tools can be considered planes, for example screwdrivers, spoons, brooms and screws. Examples of other simple tools are scissors, bottle openers, pliers and zippers (Fatonah & Assingkily, 2020). The following instruments can make human work more effective, faster and provide convenience for humans. Because this tool is simple, it is called a simple machine. In daily life, a person always uses auxiliary instruments to facilitate the tasks at hand. A simple machine is a tool that is created to be very practical and easy to use. An aircraft has the function of increasing force or work, changing energy, transferring energy, increasing speed and changing the direction of an object (Sutiadi & Nurwijayaningsih, 2016)

Simple machines can make work easier by increasing the magnitude of the force acting on an object, increasing the working distance of the force and changing the direction of the force. The purpose of using a simple machine is to multiply the force or change the direction of a far force or increase the force. Simple aircraft have mechanical advantages resulting from the comparison of load force with power force, making human work easier (Kurniawati & Eko Atmojo, 2022).

Another theory says that simple aircraft have a function as an intermediary for "convenience" and provide individual speed (Anwar, 2012). This can be observed from the benefits of simple machines, for example when drawing water from a lake or well, the pulley makes it easier for someone to draw water in a bucket. The same thing is also observed when using scissors or knives to cut certain materials, such as food. The emergence of simple machines also helps students in analyzing scientific substances through objects, because students have been provided with the concept of the working method of a tool. Simple aircraft can also be used as practice by students as a test of competency achievement.

Simple aircraft material is related to the development of instruments that are used to help students do work (Sutiadi & Nurwijayaningsih, 2016). Simple aircraft have the working principle of increasing force. This means that an individual can do something difficult by applying a small amount of effort to do a massive job. Simple machines are divided into various types, including levers, pulleys, inclined planes and pivot wheels.

1. Lever or Lever

A lever or lever is a rod that produces force because it rotates on an axis or support. A person can get a massive force by applying a lever even though the force released is not large (Jufri, 2013).

A lever or lever is a simple device that is used to modify the effect of a force. In a lever or lever there are three components, namely the fulcrum point, the load point and the power point. The fulcrum point is the point where the rod is stacked and where the rod is rotated. The load point is the working area point of the load. Meanwhile, the power point is the location where the force/power occurs. The lever has a function to double the force exerted. The number that shows how many times a simple machine doubles the force is called mechanical advantage (Marti, 2017).

2. Pulley

Darmodjo & Kaligis, 1992explains that the position of the pulleys can be divided into fixed pulleys and moving pulleys, while the quantity of wheels in an axle can vary into single pulleys (with 1 wheel) and compound pulleys or pulley block pulleys (with 2 or more pulleys). In its application, pulleys can be used individually, but can also be said to be combined with each other to reduce the force produced.

A pulley is a simple machine in the form of a grooved wheel around which a chain or rope can pass. The wheels rotate around an axle attached to the frame. A pulley can be used to change the direction of force from an upward force by the hand to a downward force on the pulley. Pulleys are divided into three types, namely fixed pulleys, movable pulleys and double pulleys (Rupeuli, 2023).

3. Inclined plane

An object is considered to be moving if a transformation of its position or position takes place regarding a reference point over a certain time interval. Quantities that can describe the motion of objects include distance, speed, acceleration, displacement and other physical quantities, whether

obtained from calculations or measurements. Rolling motion is an integration between translational motion and rotational motion. If a ball or cylinder has a rolling movement on an inclined plane, it can actually accelerate, the value of which depends on the angle of inclination and the mass of the object (Cross, 2015).

An inclined plane is a flat surface that has an angle with one end higher than the other end and is a type of simple plane. Inclined planes are used to make it easier for people to carry goods from higher to lower places or vice versa. Examples of inclined planes include stairs and roads on hills (Rohmah et al., 2023).

4. Axle Wheel

A pivot wheel is a simple machine that has two wheels of different sizes that rotate simultaneously. Usually the power force acts on the larger wheel and the load force acts on the smaller wheel, but the rotating wheel has the ability to accelerate the force. An example of a simple type of machine with axle wheels is the gear on a bicycle. Apart from bicycle gear, they include wheelchairs, cars and roller skates(Sarah, 2023).

Various functions and uses of simple aircraft as explained by Azman, 2013 in the journal (Muhammad Fadli et al., 2022)as follows:

1. Transforming dynamo energy can convert mechanical energy into electrical energy. By rotating the dynamo, electrical energy can be obtained. Turbines in power plants can transform water energy into electrical energy.
2. Minimizing force in everyday life, for example, it is often difficult to remove nails with bare hands, therefore it is necessary to use pliers to help with this activity. Another example is someone who finds it difficult to replace a car tire without lifting it first so they need to use a jack.
3. Reduce speed and shorten time. For example, leaving for work and school on foot is certainly more burdensome for children whose homes are far away, so bicycles can be used. A bicycle is a simple machine that is used to gain speed, in this case the bicycle has the function of increasing speed.
4. Transform the direction to raise the flag to a high pole. Someone can actually raise or lower the flagpole. However, this work is easier and saves more time if the flag is hoisted upwards using a rope and pulley. Pulleys cannot provide force or speed advantages but can transform direction to make a person's work easier(Zainabon, 2021).

CONCLUSION

A simple machine is a tool that is created to be very practical and easy to use. An aircraft has the function of increasing force or work, changing energy, transferring energy, increasing speed and changing the direction of an object. The purpose of using a simple machine is to double the force or change the direction of a far force or increase the force.Simple machines are divided into various types, including levers, pulleys, inclined planes, and pivoted wheels. A lever or lever is a rod that produces force because it rotates on an axis or support. A pulley is a simple machine in the form of a grooved wheel around which a chain or rope can pass. An inclined plane is a flat surface that has an angle with one end higher than the other end and is a type of simple plane. A pivot wheel is a simple machine that has two wheels of different sizes that rotate simultaneously.

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