

Analysis Of Physics Concepts In Riau Malayu Hunting

No. Abstract: ABS-24281

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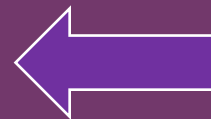
INTRODUCTION

The Sakai tribe is one of the tribes in Riau. This tribe lives nomadically and lives by collecting food provided by nature (food gathering)

The Riau Province area covers an area of 395,102 km², consisting of: land and islands 94,562 km², sea 176,530 km² and lakes and swamps 124,010 km². 60% of the land, namely approximately 66,000 km², is covered by premier and secondary forests.

When hunting, the Malay people of Riau use various traditional tools. This hunting tool applies many physics concepts

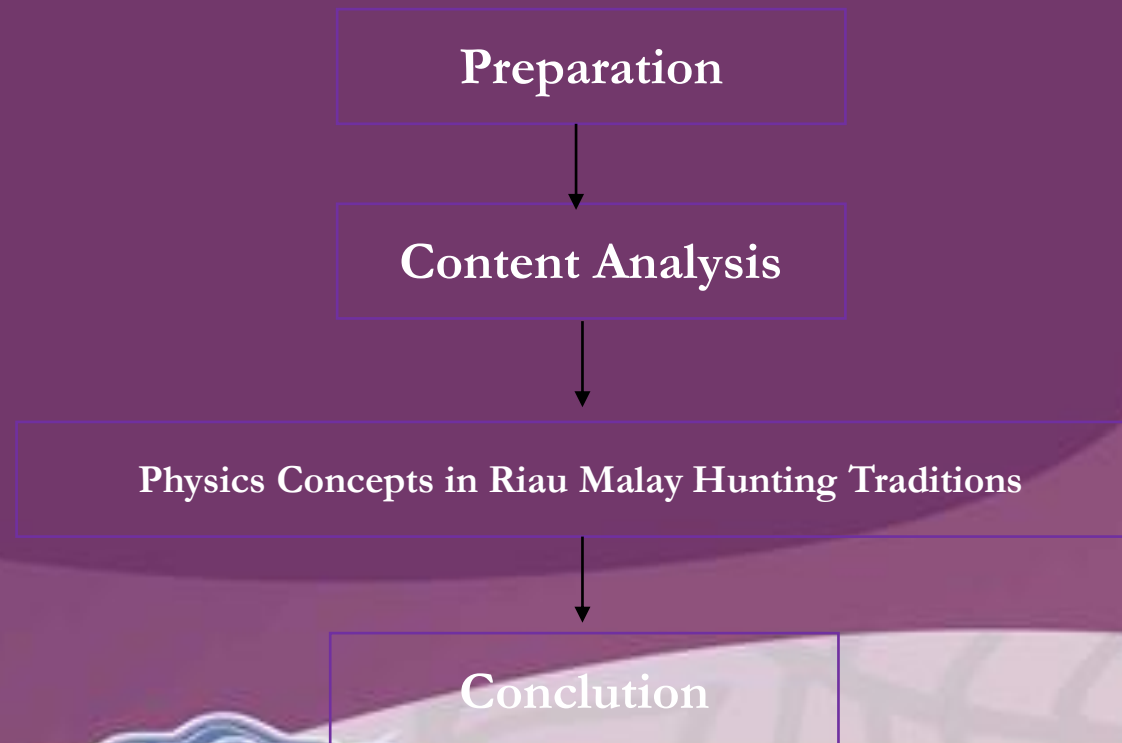
Riau forests have abundant fauna. This causes many Malay people in Riau to seek food by hunting.



METHOD

The type of research used is qualitative descriptive research using content analysis methods. The research was conducted in East Minas Village, Minas District, Siak Regency, Riau. The research subjects are several communities in the area and the objects to be researched are the hunting traditions carried out by the community and the hunting tools used.

The stages of this research can be seen in the research flow as in Figure 1 below:



FINDING AND DISCUSSION

This hunting habit is still found in the Malayu Riau people who live around Minas and Duri (inland of the Mandau river). Their hunting area is also around the forest in the area where they live, the forest area of which is estimated to be approximately 63,000 HA . Currently, the forests where they hunt have become concession areas for forest companies, so that the hunted animals are increasingly moving away from the settlements of the Riau Malay community. The Malay people of Riau are quite familiar with the conditions of the forest and the characteristics of the animals they hunt. By looking at the condition of the plants and the terrain, they can guess what types of animals are hiding in the forest. The Riau Malay people use various traditional tools to hunt, and the most commonly used are spears and snares which apply physics concepts in their use. Apart from that, when hunting, the Malay people of Riau also use the help of dogs, namely village dogs. Dogs act as chasers and herders of hunted animals towards the snares set. Riau Malay hunting tools can be seen in the following picture:



FINDING AND DISCUSSION

Analysis of physics concepts in tools and how to use hunting tools

1. Simple Airplane Concept

The concept of a simple plane is found in the design of the spearhead which is made in a pointed shape. Where in this design applies the concept of an inclined plane. An inclined plane is a path that has a certain slope and forms an angle to the horizontal surface. The steeper the inclined plane, the smaller the force exerted. Conversely, the steeper the inclined plane, the greater the force exerted

2. Momentum

Momentum p can be defined as the degree of difficulty in stopping the motion of an object. The greater the mass (m) and speed (v) of an object, the more difficult it is to stop the object. Based on the momentum equation, it can be said that the greater the momentum an object has, the greater the effect it will have when the objects collide or touch. So when the spear has greater mass it produces greater momentum. This large momentum produces a large effect on the hunted animal, making it more effective.

3. Stress

Pressure is the magnitude of the force acting on each unit area. Pressure is directly proportional to force and inversely proportional to cross-sectional area. The spearhead has a very small contact cross-sectional area so the pressure generated is very large. This pressure is what determines the ease of cutting or piercing an object.

FINDING AND DISCUSSION

4. Friction force

Friction is a force that acts on an object when there is relative movement between the object and the surrounding medium. The direction of the friction force is always opposite to the direction of the object's motion. The friction force aims to inhibit this relative movement. When two surfaces rub against each other, a frictional force arises in response to the physical contact between them. Friction forces consist of 2, namely: Static friction, Kinetic friction.

5. Center of mass

If all the objects that make up the system can be reduced to a point mass where the point mass is equal to the sum of the masses of the constituent objects, then the point mass must be placed at the coordinates of the center of mass so that its movement fulfills Newton's laws like the initial system of objects

6. Force

A force is an interaction between two objects that causes a change in the object's state of motion or shape. Forces can cause objects to move, stop moving, or change their direction of motion. The hunter's movement in swinging the spear before throwing is an example of thrust. Thrust force is the force produced as a result of pushing an object or object

FINDING AND DISCUSSION

7. Maximum voltage

The concept of tension in hunting snares is found in the use of rope. Where the rope used is made of special material. Hunting snare ropes have a maximum tension value that is greater than the strength of game animals such as pigs or deer, so that when game animals are caught in the snare, the rope does not break.

8. Kinematics

Dogs have better running speed than humans so dogs are always used in hunting activities. Dogs are used as chasers and herders of game animals because dogs have high speed, so dogs can surpass game animals in a shorter time even though the distance between the dog and the game animal is far. The greater the speed of a moving object, the smaller the time required to reach a certain distance.

CONCLUSION

Based on the results of data analysis and discussion, it can be concluded that there are several physical concepts in the Riau Malay hunting tradition, especially hunting using spears and snares. The application of physics concepts is used in the design of the tools used, the selection of tool materials, and how to use the tools. The physics concepts used include simple planes, momentum, pressure, friction, center of mass, force, maximum stress, and kinematics. The application of physics concepts to hunting traditions aims to maximize the performance of the Riau Malay hunting tradition. The results of this study can be used as a reference for contextual and ethnophysics-based physics learning, especially in kinematics and dynamics material.

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THANK YOU!