MINDS ON SCIENCE



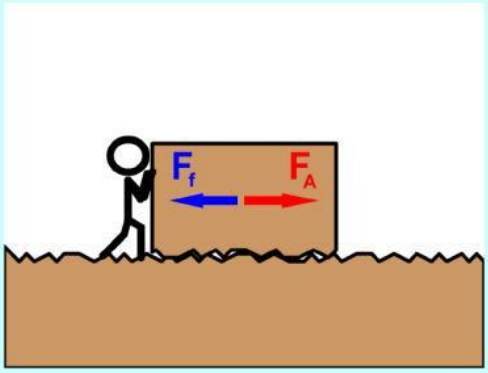
By M.Watts

Grade 5 Science

FRICTION FORCES

&

The Scientific Method



1. Jayden is applying a push force F_A / F_f on this brown box. The box is resting on a rough /smooth surface. Although the box is light, Jayden is finding it very difficult to move this box, because there is another force that is fighting against his push force and slowing down the movement of the box.

This force that slows down and stops movement when one object rubs against another, F_A / F_f is called work /friction /energy. This force always acts in the opposite / same direction as the force applied.

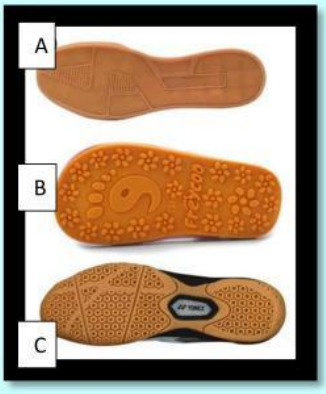
2 . Read the dialogue between Joshua and Nathanael, then match their steps with the steps of the Scientific Method.

I enjoy watching these Grade 8 students play basketball at school. I watch them practice every Tuesday and Thursday.



Me too...I noticed that Kayla slipped and fell twice last week and slipped and hurt herself again this week.

Yes...I also noticed that none of the other girls fall as often as Kayla does. Two more things I noticed is that the floor is very smooth and the players wear different types of shoes.



Written & Curated by M. Watts

2023

LIVEWORKSHEETS

MINDS ON SCIENCE



Steps in the Scientific Method	Students' Steps
Make an Observation	Shoe A – Needs 10 N to pull it on the court floor Shoe B – Needs 20 N to pull it on the court floor Shoe C – Needs 23 N to pull it on the court floor
Ask a Question	I think that shoe B is the safest shoe for Kayla, because it has deeper grooves.
Make a Prediction/Hypothesis	Joshua and Nathanael noticed that Kayla was falling on the court more often than the other players, and that the floor of the court was very smooth.
Do a Test / Experiment	Which of the three shoes is safest for Kayla to wear on the basketball court?
Record & Analyze Data	The students used a force meter/spring balance to measure the force needed to move each of the three shoes, A, B and C. They each had soles with different roughness
Draw a Conclusion	Shoe C is the safest shoe because it needed (23N) the most force to move it across the court floor. This also means that shoe has the most friction.

========== END ==========

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LIVEWORKSHEETS