

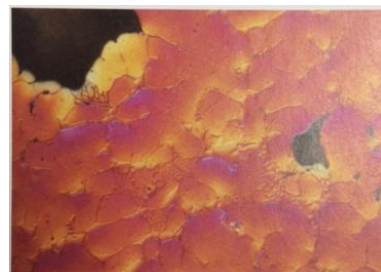
The Effects of Friction Worksheet



1. Compare and contrast starting friction and kinetic friction, giving an example of each.
2. Give examples of friction you have experienced, besides the ones already given, that are
 - a. sliding
 - b. rolling
 - c. fluid
3. What type of friction is air resistance? Give two examples of it.
4. Explain the following statements, taking into consideration the force of friction.
 - a. Streamlining is important to the transportation industry (Streamlining means to change the shape of an object to provide little resistance to the flow of air or water)
 - b. Friction is necessary to open a closed door that has a doorknob.
 - c. A highway sign reads, "Reduce speed on wet pavement"
 - d. Screwnails are useful for holding pieces of wood tightly together.



5. The photograph from the picture to the right shows a microscopic view of an aluminum surface that appears smooth to the unaided eye. Describe what the photograph reveals about friction.
6. Is friction desirable or undesirable when you tie a knot in a string? Explain.
7. Exercise bikes have a control that allows the rider to adjust the amount of friction in the wheel. Describe how you would perform an experiment to determine the relationship between the setting on the control and the minimum force needed to move the bicycle's pedal.
8. At speeds typical of transportation vehicles (trucks, bikes, boats, airplanes, etc.), how do you think fluid friction depends on the speed?
9. Friction may be a help in some situations and a hindrance in others. Describe two examples for each situation. For those situations where friction is undesirable, what efforts are made to reduce it as much as possible? For those situations where friction is desirable, how is it increased?
10. Explain how you would solve each of the following problems. Relate your answer to friction.
 - a. A refrigerator door squeaks when opened or closed.
 - b. A small throw rug at the front entrance of a home slips easily on the hard floor.
 - c. A picture frame hung on a wall falls down because the nail holding it slips out of its hole.



11. Which creates a greater force of friction: sliding your physics book across the table on its back cover or along one of its edges?