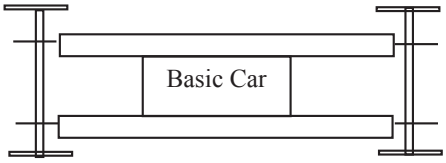
Teacher Guide to the Mouse Trap Car

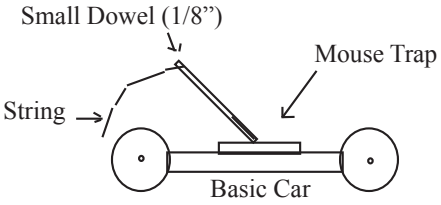
The basic car is provided as a starting point for students to build if they have no other ideas. There are dozens of variations on the mouse trap car. They have been made from coat hangers, heavier wood, plastic with CD wheels, and other materials.

In this version, the masonite body is just a little larger than a standard mouse trap. The trap can be glued on the flat area. The small 1/8" dowel can be taped with masking tape to one side of the mouse trap. Length of the 1/8" dowel is something that the students can experiment with. The longer it is, the more pull it will have on the rear axle. There will be a point where the short, quick snap will outdistance the long, slow lever.

This is where students can use their imaginations to modify the car or come up with a completely different design. Some kids may put graphite on the axle to cut the friction. Some may want to use a metal axle.

Mouse Trap Car





1. Attach a mouse trap to the basic car.
2. Attach a 1/8" dowel to the mouse trap.
3. Tie a string to the end of the dowel.
4. Pull the trap back and wind the string around the axle of the car.
5. Release the mouse trap, and the string will spin the axle.

A. Describe what happens to the car. _____
_____

B. If the car does not go straight, what could you do to fix the problem? _____
_____

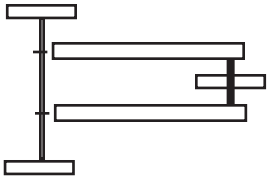
C. Draw a diagram of how you would make a three wheel design. Should the single wheel go on the front or the back?_____

Answers...

A. This will be based upon observation. If everything is aligned, the car will go.

B. This problem usually happens when the wheels are not aligned in parallel. Students must straighten the wheels.

C.



Answers.

D. The mouse trap spring is the power for the car.

E. If the string is tied around the axle, there will be no final snap. It will just get stuck and stop. This is usually learned by experience.

F. The dowel acts as a lever. The longer it is, the slower will be the acceleration, but it may provide more power. If tied to the mouse trap, there will be no leverage on the wheels.

G. You could actually make it front-wheel drive by wrapping the string from the bottom instead of from the top.

H. The trick is to put rubber bands on the wheels to make rubber tread.

I. This answer could vary. Small wheels in the front with large in the back could be the tradeoff. However, this is another experiement to see what works best.

J. Plastic or metal could be a different material, as it will have less friction than wood.

K. This answer could vary. Many people use plastic CDs as wheels, as they are thin and large.

L. Possibly using one piece of wood or other material, and drilling one hole that is straight.

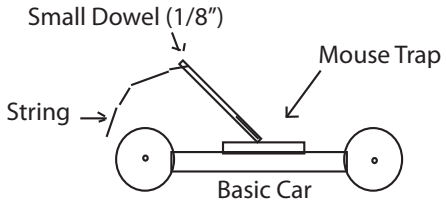
M. Any string that is rough and provides more friction to turn the axel. A rubber band or similar material is a consideration.

N. The linoleum floor is smooth without any bumps. Pavement would have bumps that will slow the car.

D. What provides the wheels with power to move the car? _____

E. Why is it not a good idea to tie the string around the axle? _____

_____

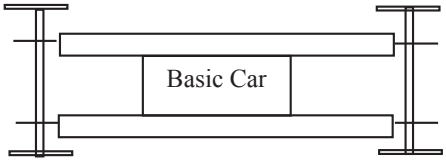


F. What is the difference between using the dowel to attach the string rather than putting the

_____

_____

G. What could be another way to bring power to the wheels of the car? Sketch it in.



H. The wheels may spin a little before taking off. What could be done to provide the wheels with more traction? _____

_____

I. Large wheels take more energy to start and more energy to stop. Small wheels take less energy to start and less energy to stop. This is true for all wheels. What would be your idea for Why? _____

J. If you could change the material of the axle, what would you use? Why? _____

_____

K. What change in the wheels would be more benefical? _____

_____

L. What would be a better way to make the holes that hold the axles and line them up?

_____

M. What changes could be made in the type of string used on the dowel? _____

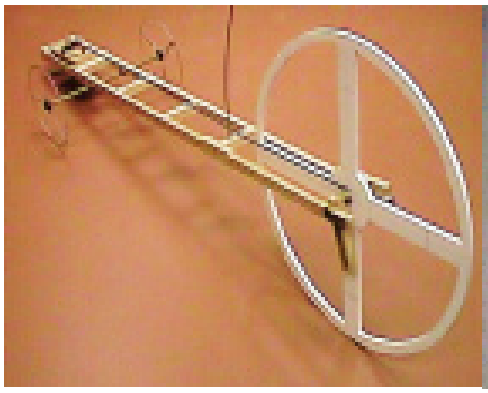
_____

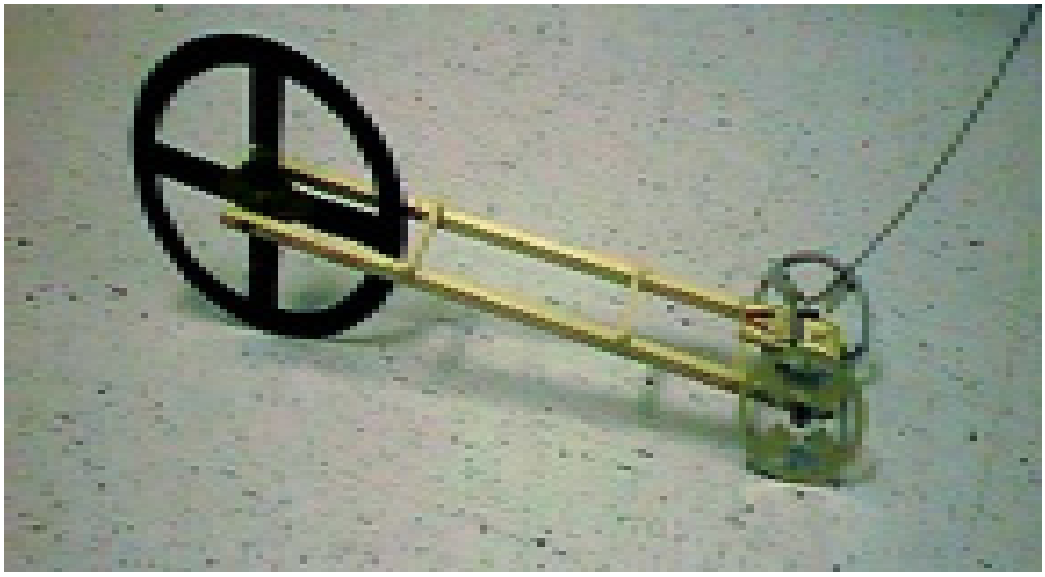
N. Will the car work better on the classroom linoleum floor or on the rough pavement outside? Explain why. _____

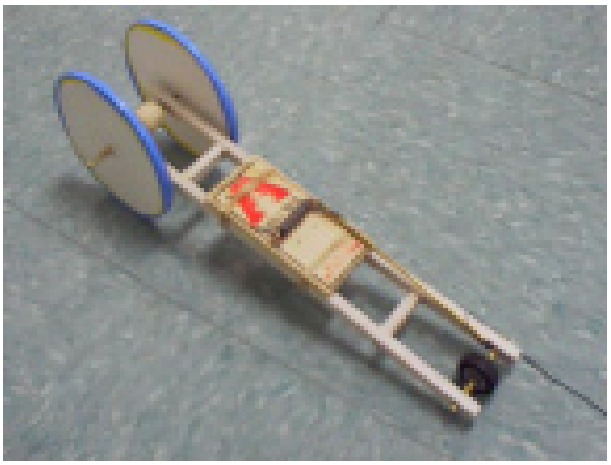
Several web sites show plans and examples for mouse trap cars. Use a search engine, and all of these will come up.

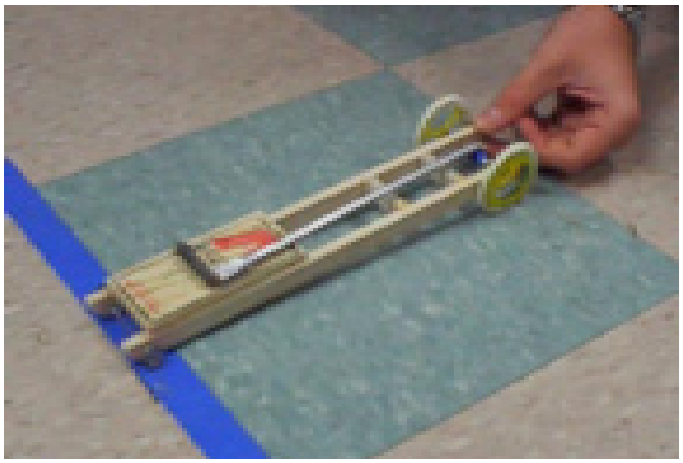
It's thrilling for kids to come up with their own ideas and designs and to watch them work after enough tinkering.

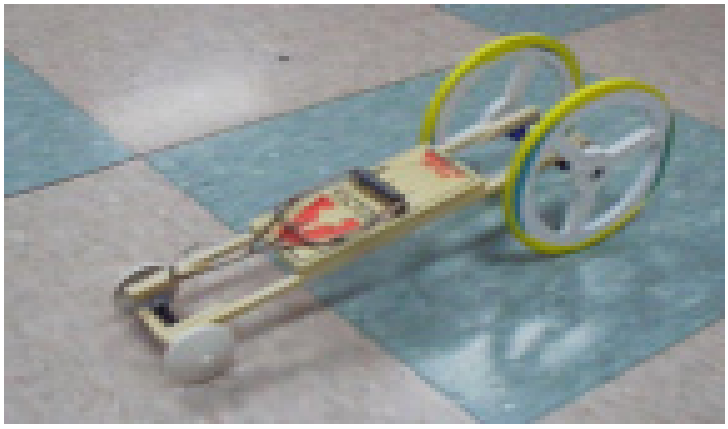
Be sure to use standard size mouse traps. Rat traps could be dangerous for fingers.

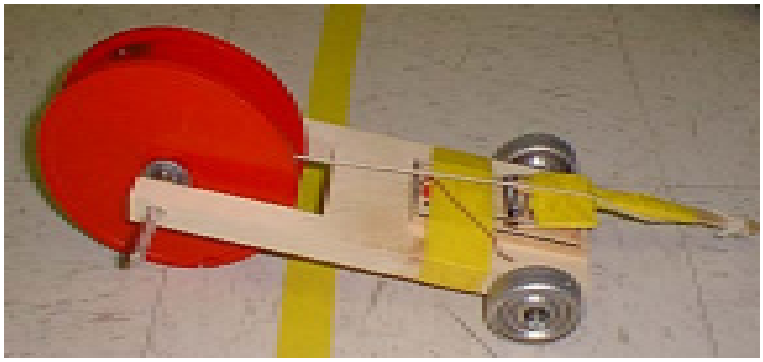












O. From the pictures above, select one and write a description of how you think the car works.