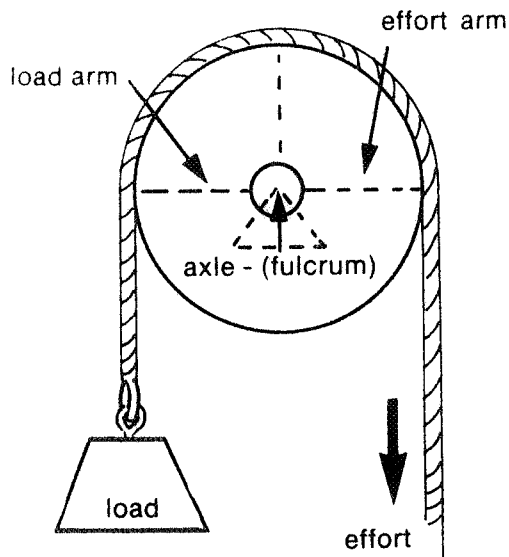


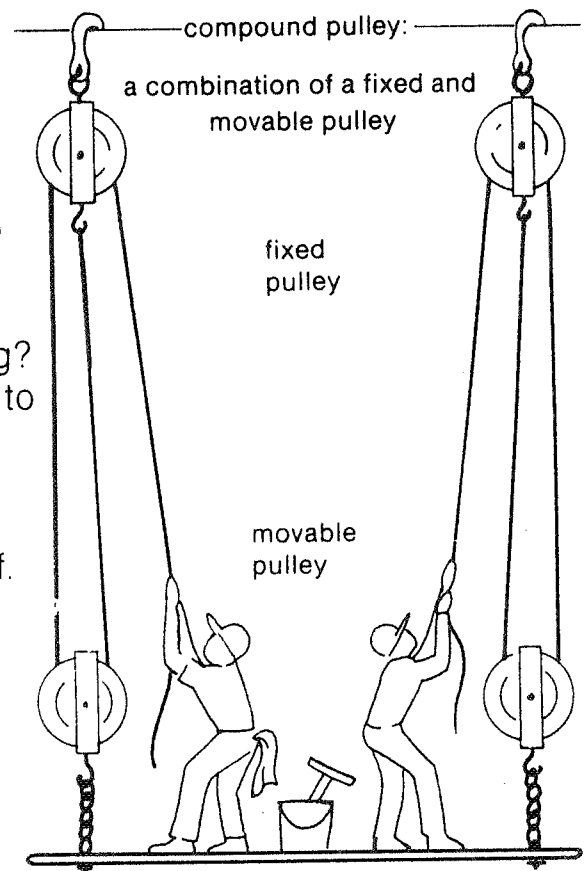
# COMBINING PULLEYS



simple pulley — first-class lever

A pulley can be thought of as a round or curved lever. The fulcrum is the axle of the pulley — the point where the pulley is supported. The grooved part of the pulley that holds the rope can be thought of as having two parts. From top center, that part of the rope on the effort side is the effort arm. From top center on the load side is the load arm. Since the two arms are of equal length, there is no mechanical advantage, just a change of direction of the applied force.

There are some situations in which fixed and movable pulleys are combined to help us do work. Did you ever wonder how a window washer or painter can pull himself and his equipment up the side of a building? He uses sets of movable pulleys attached to his scaffold and sets of fixed pulleys attached to the building. Remember that movable pulleys provide a big advantage because they reduce the effort by one half. This mechanical advantage increases as the number of movable pulleys increases. Such combinations of pulleys enable the moving of pianos and heavy furniture through an upper story window in a tall building.



## ACTIVITY

List three other jobs in which combination pulleys would be used.

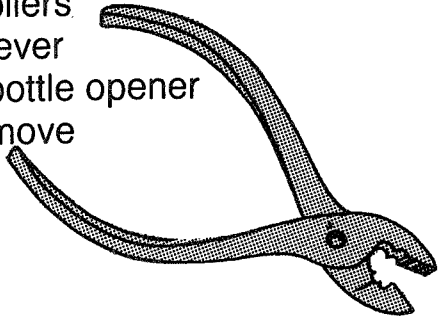
1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Make a board display to show pulleys being used.

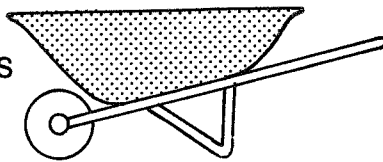
# SEEK AND FIND LEVERS

The word search puzzle contains 24 words related to levers. Words may be printed across or down.

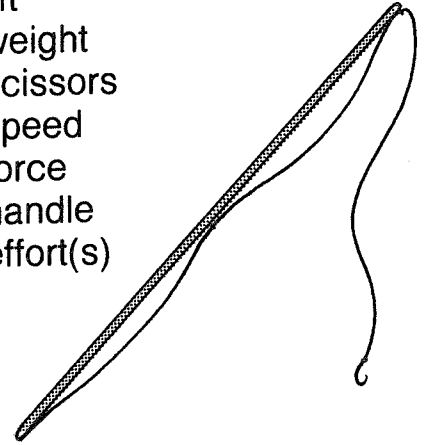
pried  
fishing pole  
load  
seesaw  
extension  
pliers  
lever  
bottle opener  
move



fulcrum  
second  
crowbar  
nutcracker  
wheelbarrow  
hammer  
third-class  
first  
tongs



direction  
distance  
lift  
weight  
scissors  
speed  
force  
handle  
effort(s)



L	U	M	T	X	Y	J	Q	W	F	I	S	H	I	N	G	P	O	L	E	J	R
K	L	R	J	A	S	T	H	U	M	P	X	S	G	H	M	A	Z	O	O	K	E
N	I	P	L	I	E	R	S	V	B	W	Q	X	Z	P	M	K	U	A	K	O	X
L	R	N	E	W	E	A	Q	M	O	V	E	P	S	E	C	O	N	D	B	G	T
G	F	U	V	H	S	K	E	W	T	J	U	W	D	S	R	K	U	Z	N	O	E
Y	U	S	E	T	A	G	H	E	T	R	B	N	P	I	O	G	T	V	L	G	N
G	V	R	R	K	W	H	E	E	L	B	A	R	R	O	W	L	C	Q	B	O	S
U	L	B	N	P	I	A	W	Z	E	B	V	O	I	J	B	Y	R	G	T	R	I
F	U	L	C	R	U	M	N	T	O	N	G	S	E	Z	A	M	A	R	H	S	O
I	L	P	E	W	V	M	X	Q	P	Y	E	L	D	I	R	E	C	T	I	O	N
R	M	L	U	C	L	E	W	U	E	E	W	W	I	I	E	B	K	K	R	H	H
S	C	I	S	S	O	R	S	S	N	X	E	Z	S	P	T	W	E	C	D	T	H
T	R	F	P	W	M	V	P	O	E	G	I	U	T	S	B	N	R	E	C	G	U
G	R	T	F	H	T	H	E	L	R	W	G	I	A	L	R	K	P	Z	L	W	N
H	J	Z	F	O	R	C	E	E	W	Q	H	A	N	D	L	E	K	Z	A	G	B
R	Y	U	J	A	O	Z	D	K	B	N	T	F	C	Q	S	Y	E	B	S	O	L
U	I	Z	S	X	P	O	I	I	P	N	B	K	E	F	F	O	R	T	S	M	E