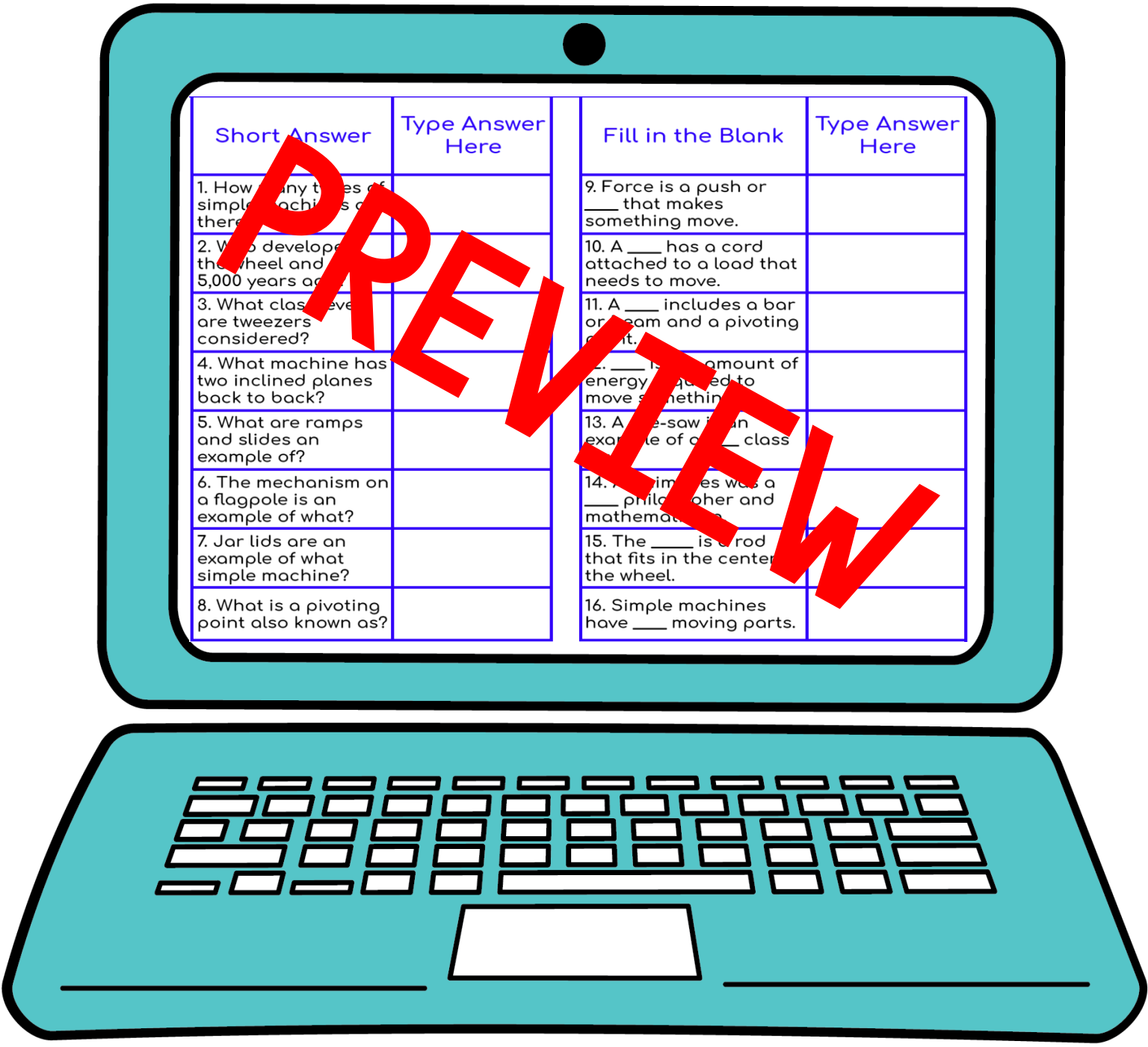
Short Answer	Type Answer Here
1. How many types of simple machines are there?	
2. Who developed the wheel and axle 5,000 years ago?	
3. What class lever are tweezers considered?	
4. What machine has two inclined planes back to back?	
5. What are ramps and slides an example of?	
6. The mechanism on a flagpole is an example of what?	
7. Jar lids are an example of what simple machine?	
8. What is a pivoting point also known as?	



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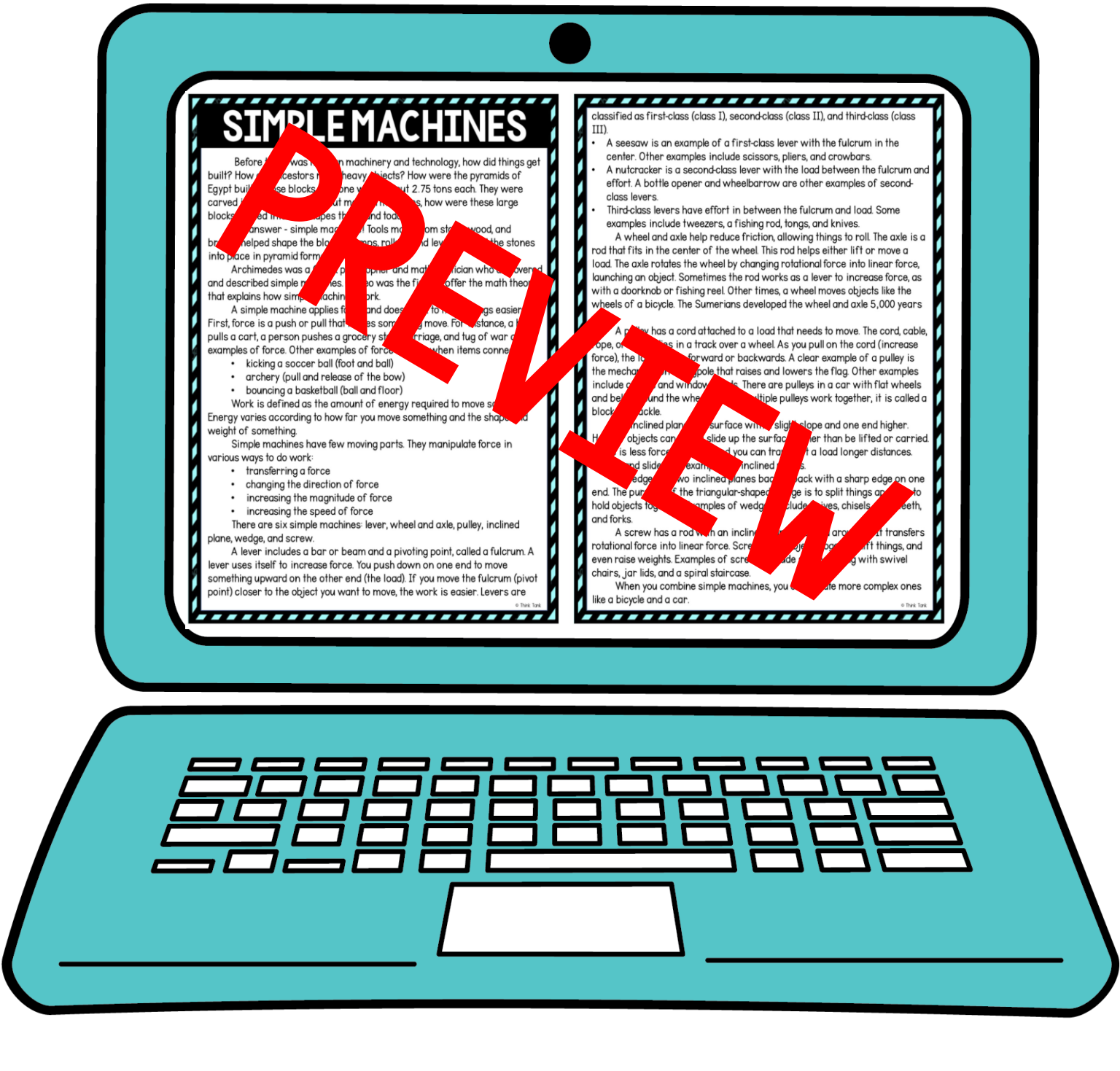
Fill in the Blank	Type Answer Here
9. Force is a push or ____ that makes something move.	
10. A ____ has a cord attached to a load that needs to move.	
11. A ____ includes a bar or beam and a pivoting point.	
12. ____ is the amount of energy required to move something	
13. A see-saw is an example of a ____ class	
14. ____ was a ____ philosopher and mathematician	
15. The _____ is a rod that fits in the center of the wheel.	
16. Simple machines have ____ moving parts.	


SIMPLE MACHINES
Before
was
n machinery and technology, how did things get
built? How
cestors
heavy
jects? How were the pyramids of
Egypt buil
se blocks
one
t 2.75 tons each. They were
carved
t m
s, how were these large
blocks
ed fr
apes th
nd toa
answer - simple mac
Tools ma
om st
wood, and
br
helped shape the blo
ps, roll
d lev
the stones
into place in pyramid form
Archimedes was a
p
opher and mat
ician who
overed
and described simple m
es.
so was the fi
offer the math theo
that explains how simp
achin
ork.
A simple machine applies f
and does
to
gs easier
First, force is a push or pull that
es som
move. For
stance, a
pulls a cart, a person pushes a grocery st
rriage, and tug of war a
examples of force. Other examples of force
hen items conne
kicking a soccer ball (foot and ball)
archery (pull and release of the bow)
bouncing a basketball (ball and floor)
Work is defined as the amount of energy required to move s
Energy varies according to how far you move something and the shape
d
weight of something.
Simple machines have few moving parts. They manipulate force in
various ways to do work:
transferring a force
changing the direction of force
increasing the magnitude of force
increasing the speed of force
There are six simple machines: lever, wheel and axle, pulley, inclined
plane, wedge, and screw.
A lever includes a bar or beam and a pivoting point, called a fulcrum. A
lever uses itself to increase force. You push down on one end to move
something upward on the other end (the load). If you move the fulcrum (pivot
point) closer to the object you want to move, the work is easier. Levers are
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classified as first-class (class I), second-class (class II), and third-class (class
III).
A seesaw is an example of a first-class lever with the fulcrum in the
center. Other examples include scissors, pliers, and crowbars.
A nutcracker is a second-class lever with the load between the fulcrum and
effort. A bottle opener and wheelbarrow are other examples of second-
class levers.
Third-class levers have effort in between the fulcrum and load. Some
examples include tweezers, a fishing rod, tongs, and knives.
A wheel and axle help reduce friction, allowing things to roll. The axle is a
rod that fits in the center of the wheel. This rod helps either lift or move a
load. The axle rotates the wheel by changing rotational force into linear force,
launching an object. Sometimes the rod works as a lever to increase force, as
with a doorknob or fishing reel. Other times, a wheel moves objects like the
wheels of a bicycle. The Sumerians developed the wheel and axle 5,000 years
A p
y has a cord attached to a load that needs to move. The cord, cable,
ope, o
es in a track over a wheel. As you pull on the cord (increase
force), the lo
forward or backwards. A clear example of a pulley is
the mecha
pole that raises and lowers the flag. Other examples
include c
and windo
s. There are pulleys in a car with flat wheels
and be
und the whe
ltiple pulleys work together, it is called a
block
ackle.
inclined plan
surface wi
slig
slope and one end higher.
H
objects can
slide up the surfac
er than be lifted or carried.
is less force
d you can tra
a load longer distances.
nd slide
exam
inclined
s.
edge
wo inclined planes bac
ack with a sharp edge on one
end. The pur
the triangular-shaped
ge is to split things ap
to
hold objects tog
amples of wedg
clude
ives, chisels
eeth,
and forks.
A screw has a rod w
h an incli
arc
t transfers
rotational force into linear force. Scre
ge
ba
ft things, and
even raise weights. Examples of scre
ude
g with swivel
chairs, jar lids, and a spiral staircase.
When you combine simple machines, you
te more complex ones
like a bicycle and a car.
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PREVIEW


PLEASE VIEW
THE VIDEO TO
SEE HOW THIS
PRODUCT WORKS