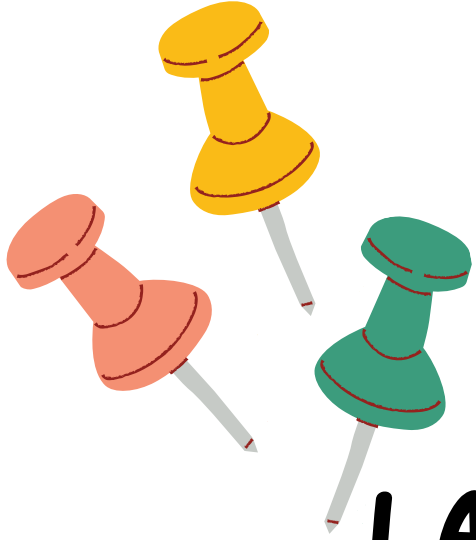# SIMPLE MACHINES

I AM ABLE TO...

NAME SIX BASIC TYPES OF SIMPLE MACHINES

DESCRIBE HOW SIMPLE MACHINES HELP PEOPLE DO WORK

USE THE ENGINEERING DESIGN PROCESS TO DESIGN A PLAYGROUND STRUCTURE THAT USES AT LEAST ONE SIMPLE MACHINE

EXAMINE A DESIGN FOR A PLAYGROUND STRUCTURE AND DESCRIBE HOW IT WORKS AND WHAT COULD BE CHANGED OR IMPROVED

PULLEYS

A PULLEY USES A WHEEL AND A ROPE TO MOVE AND OBJECT. IT CAN ALSO PULL AN OBJECT UP OR PULL IT DOWN.

LEVERS

A LEVER IS A BAR THAT HAS A PIECE IN THE MIDDLE OF IT. IT'S CALLED A FULCRUM. IT MAKES THE BAR MOVE UP AND DOWN.

INCLINED PLANES

AN INCLINED PLANE IS A THING THAT IS SLANTED WHICH MEANS IT IS NOT FLAT. THERE IS A LOWER POINT AND A HIGHER POINT. THIS MAKES IT EASIER TO MOVE SOMETHING.

WEDGE

A WEDGE HAS AT LEAST ONE SIDE THAT IS SLANTED. A WEDGE CAN HOLD SOMETHING IN ITS PLACE OR PULL SOMETHING APART.

WHEEL AND AXLE

AN AXLE IS A SMALL ROD OR STICK THAT GOES THROUGH A WHEEL AND HELPS MOVE THE WHEEL AROUND. IT CAN BE LONG OR SHORT.

SCREW

A SCREW HOLDS THINGS TOGETHER. IT HAS RIDGES AROUND IT CALLED THREADS. YOU CAN MAKE A SCREW TIGHTER BY TURNING IT ONE WAY AND LOOSER BY TURNING IT THE OTHER WAY.

GAME TIME

CHALLENGE

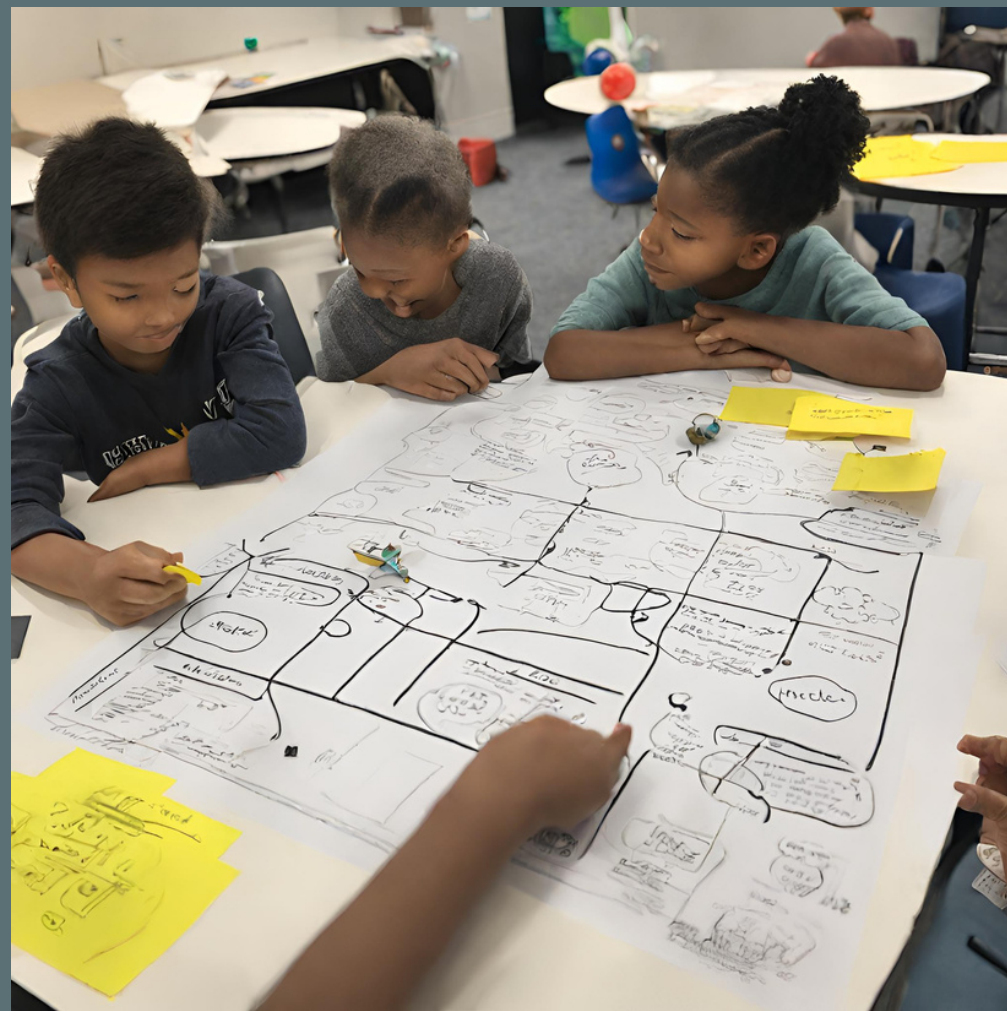DESIGN YOUR OWN PLAYGROUND EQUIPMENT

IT NEEDS TO:

MOVE OR HELP SOMEONE MOVE

INCLUDE A SIMPLE MACHINE
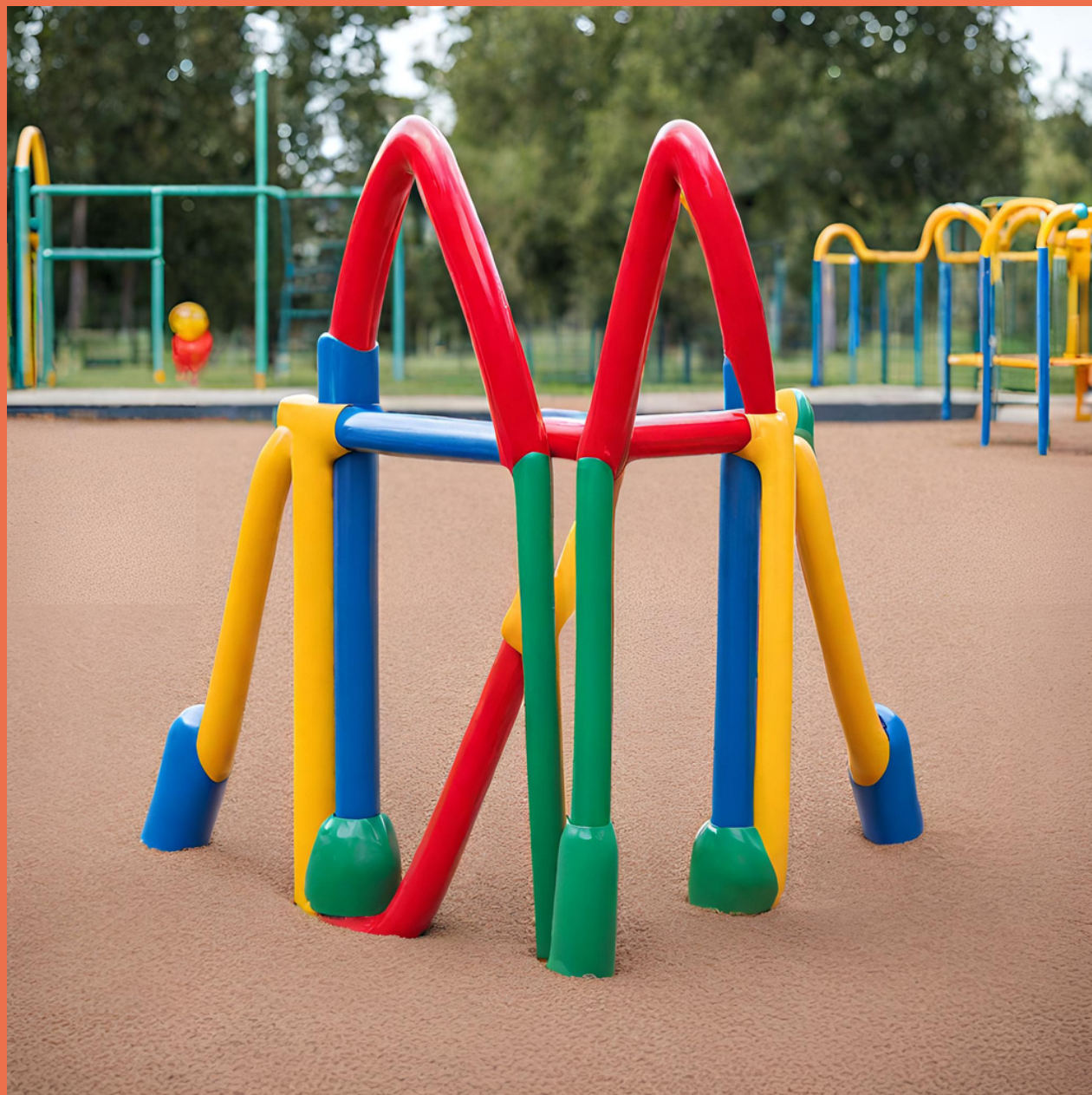
MAKE WORK EASIER

DESIGN THINKING

PLAN

CREATE

IMPROVE

SHARE

- WHAT IS YOUR STRUCTURE? HOW DOES IT WORK?

- HOW DOES IT MOVE? HOW MIGHT IT HELP SOMEONE MOVE?

- WHAT SIMPLE MACHINE(S) DOES IT USE?

- HOW DOES THE SIMPLE MACHINE HELP SOMEONE DO WORK?

- WHAT MIGHT YOU CHANGE ABOUT THIS DESIGN? EXPLAIN YOUR THINKING.

PLAYGROUND MATH

FIND THREE SHAPES ON THE PLAYGROUND AND EXPLAIN HOW MANY SIDES AND VERTICES EACH SHAPE HAS.

PLAYGROUND MATH

I SPY...

- SOMETHING WITH 4 STRAIGHT SIDES
- SOMETHING WITH MORE THAN 4 CORNERS
- SOMETHING WITH A SMALL ANGLE
- SOMETHING WITH A HUGE ANGLE
- SOMETHING WITH NO STRAIGHT SIDES
- SOMETHING THAT HAS STRAIGHT SIDES OF UNEQUAL LENGTH