



challenge cards



Find more resources for Blueprint Snap at
sphero.cc/BPsnapresources

trusses & weighted trusses



1x Pitch
Truss



2x Pitch
Truss



3x Pitch
Truss



4x Pitch
Truss



5x Pitch
Truss



10x Pitch
Truss



1x Pitch
Weighted Truss



3x Pitch
Weighted Truss

connectors & hinges



Connector



Lock
Plate



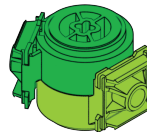
Bearing
Plate



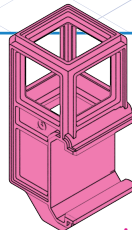
Cardboard
Clamp



Turntable



Hinge

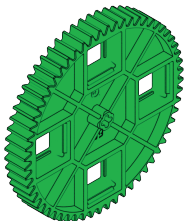


Linear
Motion Bracket

gears



20T Gear



60T Gear

shafts & shaft collar



2x Pitch
Capped Shaft



3x Pitch
Capped Shaft



4x Pitch
Capped Shaft



Shaft
Collar

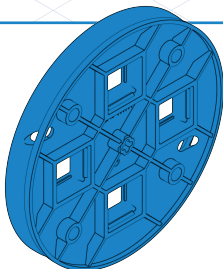
pulleys & tires



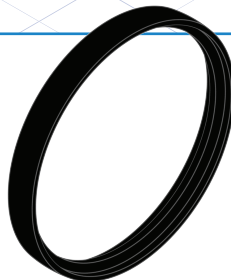
30mm
Pulley



45mm
Pulley



90mm
Pulley



100mm
Tire



5x Pitch
Shaft

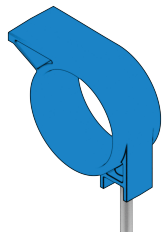


6x Pitch
Shaft



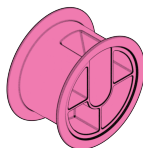
10x Pitch
Shaft

ring tool

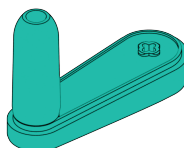


Ring Tool

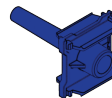
spool, ropes, and rope anchor



Spool



Hand Crank

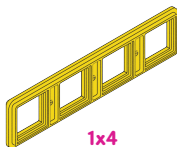


Rope Anchor

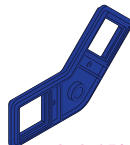
plates



1x2
Plate



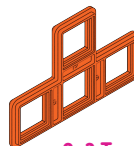
1x4
Plate



2x2 45°
Angle Plate



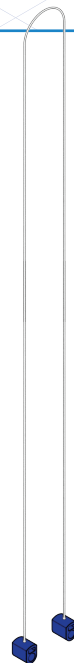
2x2 90°
Angle Plate



2x3 Tee
Plate

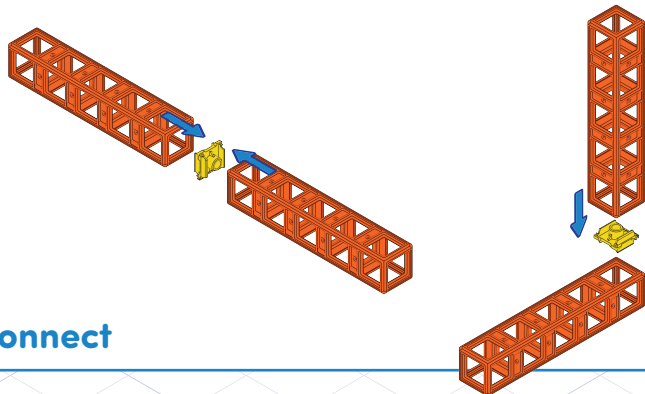


0.5m Rope

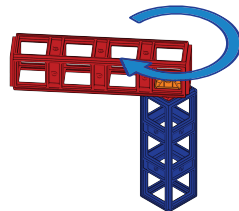


1m Rope

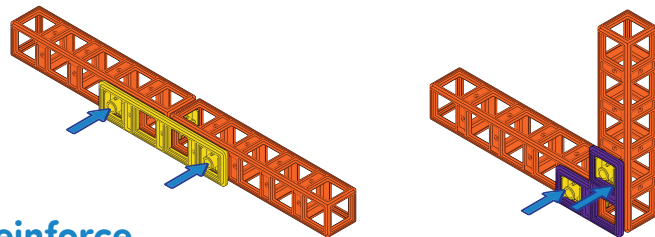
connect



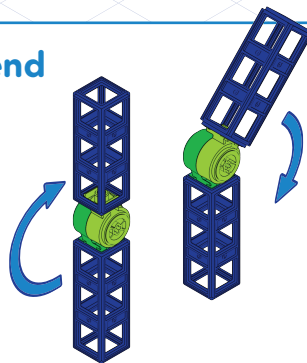
twist



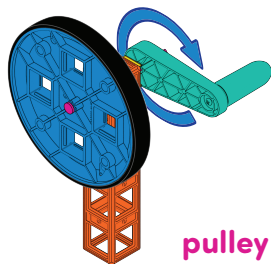
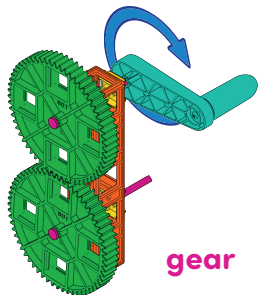
reinforce



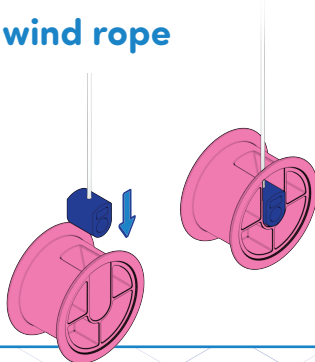
bend



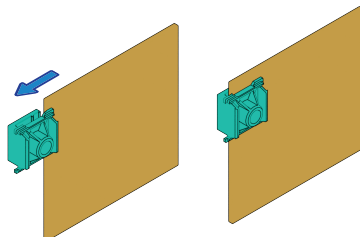
create motion



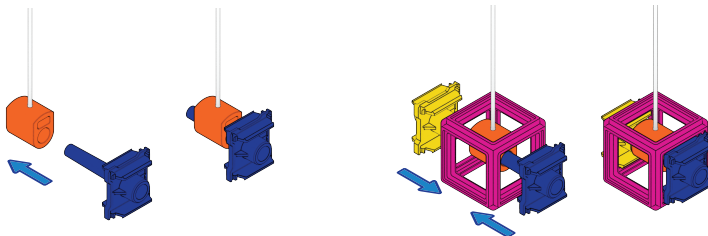
wind rope



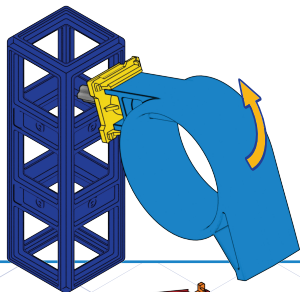
craft



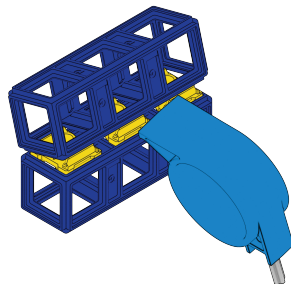
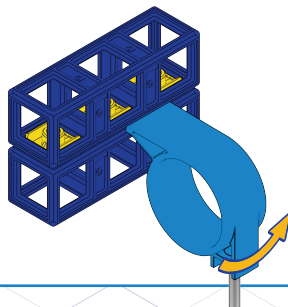
attach rope



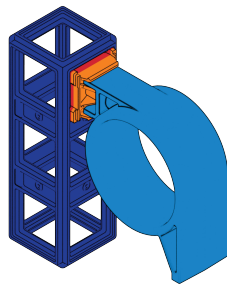
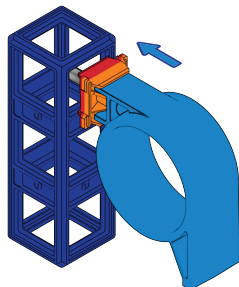
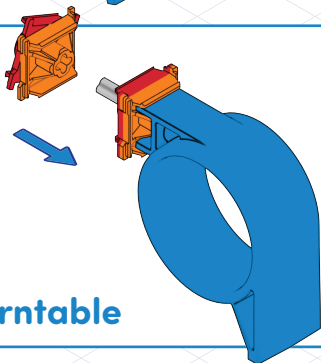
remove connector



separate trusses



attach a turntable



parts

5



Connector

3



2x Pitch
Truss

3



3x Pitch
Truss

learn

Connectors are your friends. They attach Snap parts to one another so you can create large builds. Let's explore!

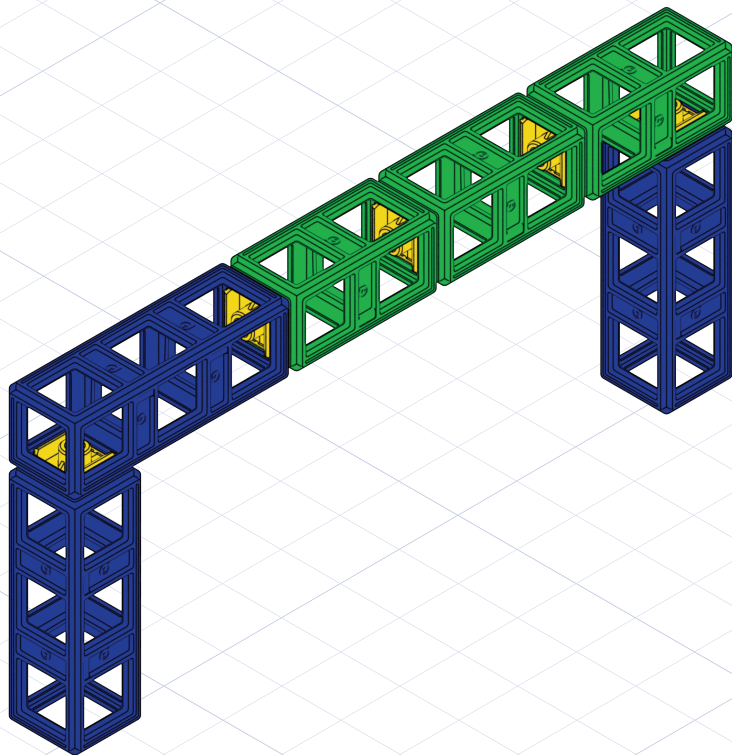
build

Build a small bridge.



explore

- + This bridge is not very sturdy. Add or replace Snap parts to make it stronger.
- + Try placing a small object on the bridge to see how strong it is. What could make it stronger?



parts

9



Connector

3



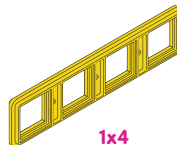
2x Pitch
Truss

3



3x Pitch
Truss

1



1x4
Plate

learn

When a plate is connected over a joint between trusses, it will reinforce your build.

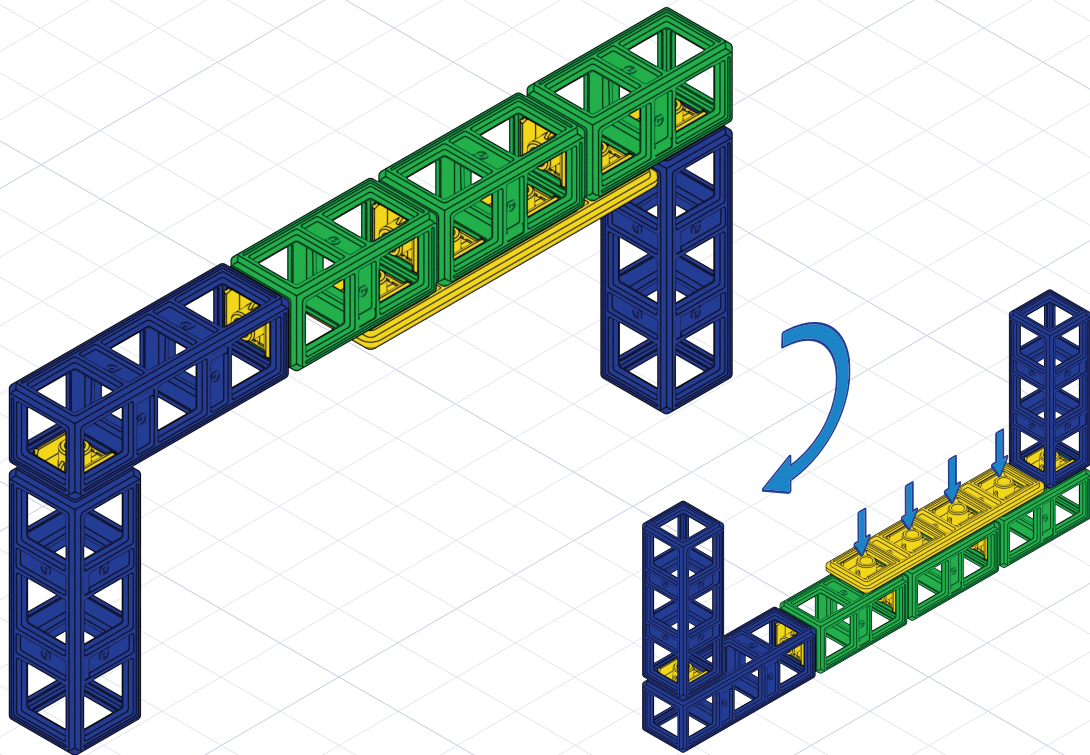
build

Build the bridge you saw in Challenge #1, this time with a 1x4 Plate to reinforce it.



explore

- + Put the 1x4 Plate in a few different places. Where does it work the best?
- + Try adding other plates to your bridge and test how strong it is.



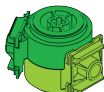
parts

2



Turntable

2



Hinge

2



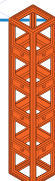
2x Pitch
Truss

2



3x Pitch
Truss

1




5x Pitch
Truss

learn

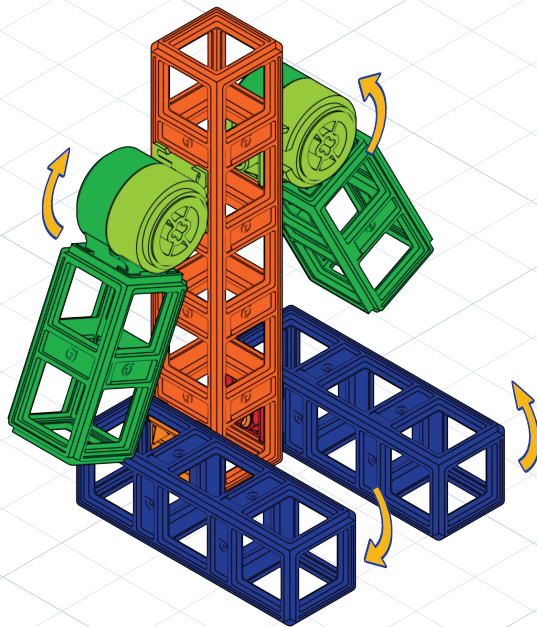
Turntables let parts rotate, and Hinges help you change the angle between pieces. Together, they can help you build arms and legs for an adorable stick figure.

build

Build a stick figure.  Flip

explore

- + Add some Snap parts to your stick figure to make it a bit more interesting.
- + What makes Turntables and Hinges better for this build than Connectors?



parts

3



Connector

3



3x Pitch
Capped Shaft

3



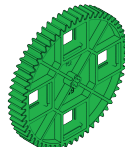
Shaft
Collar

1



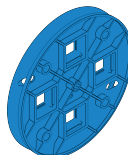
20T Gear

1



60T Gear

1



90mm
Pulley

1




10x Pitch
Truss

learn

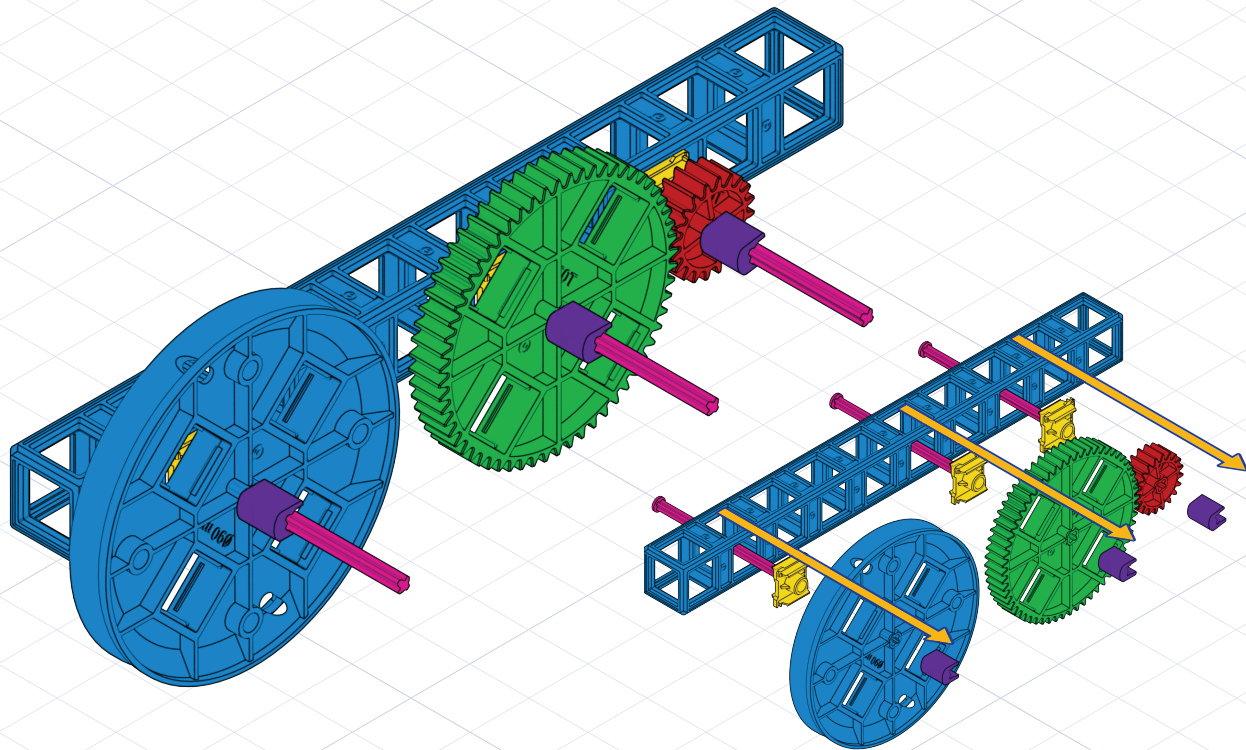
Shafts help gears and wheels spin. Capped shafts and shaft collars help keep the gears and wheels from spinning away.

build

Build a gear and pulley system.  Flip

explore

- + What else might you build with gears and pulleys?
- + Try removing some of the shaft collars or using metal shafts. What happens?



parts

2



Lock
Plate

2



Bearing
Plate

1



3x Pitch
Capped Shaft

1



5x Pitch
Truss

1



10x Pitch
Truss

learn

You have met Turntables. Lock Plates and Bearing Plates are just a Turntable separated into two parts! They either let shafts spin freely or hold on to them tight.

build

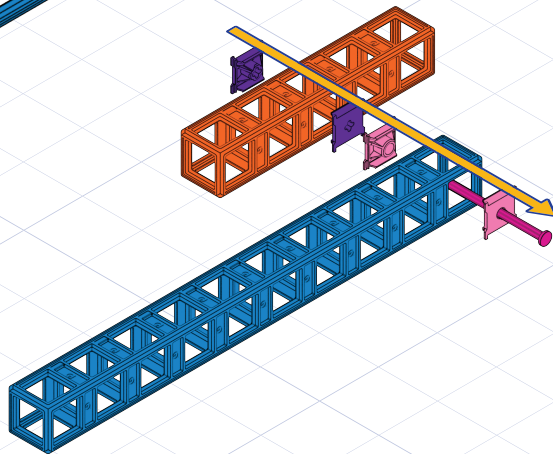
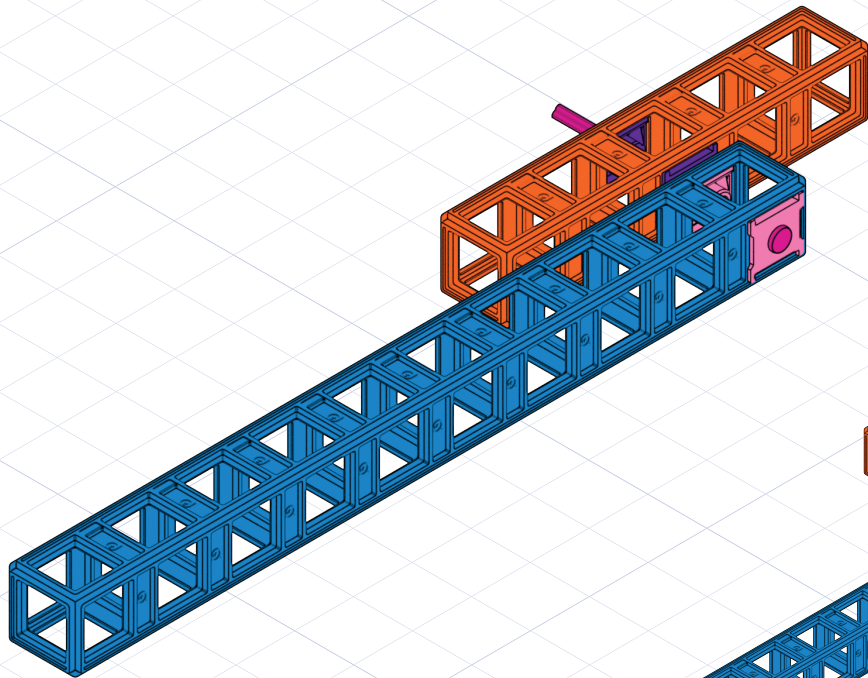
Build a spinner.



Flip

explore

- + Why are the Lock Plates on the 5x Pitch Truss?
- + Replace the Lock Plates with Bearing Plates on the 5x Pitch Truss. What happens when you spin the shaft?



parts

1



Connector

2



Lock
Plate

1



Bearing
Plate

1



3x Pitch
Capped Shaft

1



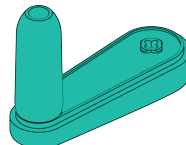
5x Pitch
Truss

1



10x Pitch
Truss

1



Hand
Crank

learn

Shafts and Hand Cranks can help you create things that spin, like windmills and merry-go-rounds.

build

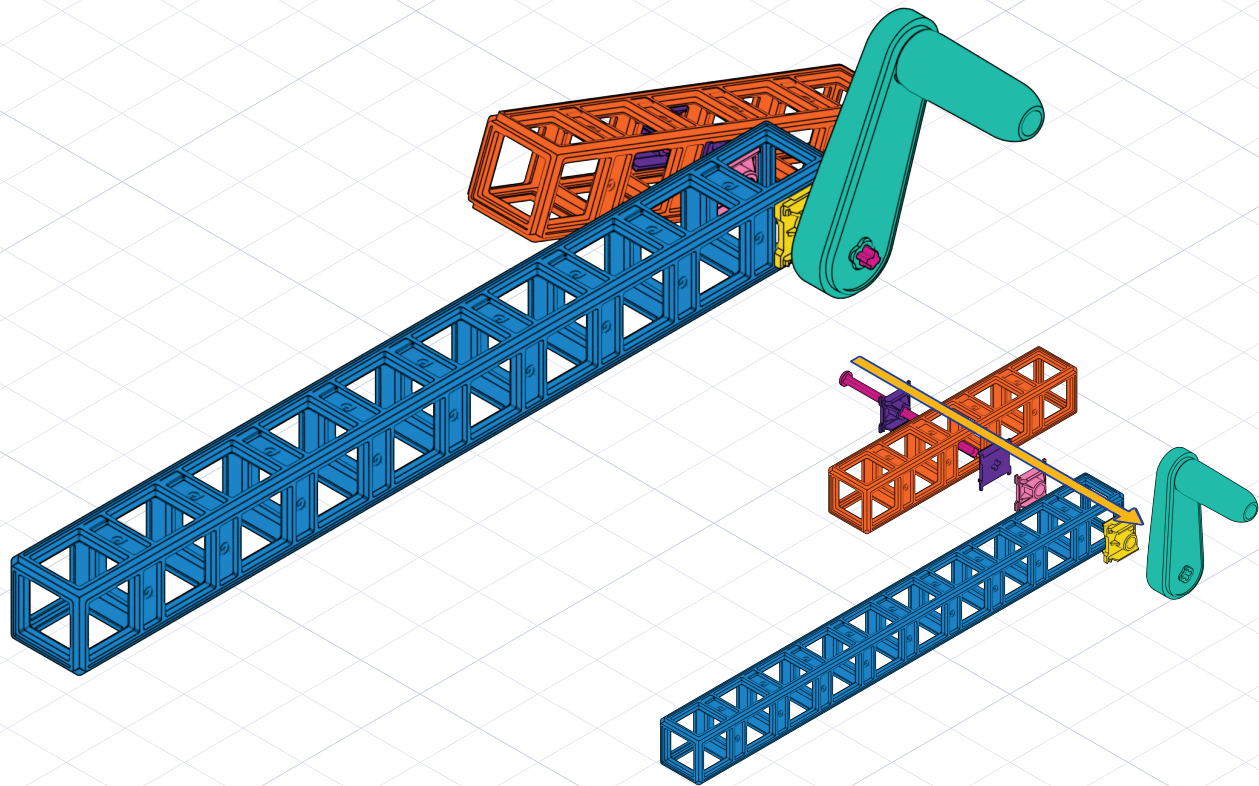
Build the spinner. Hold the 10x Pitch Truss at the bottom and spin using the Hand Crank.



Flip

explore

- + Try adding or using different parts that might spin.
- + What do you think you could do to make this spin faster?



parts

1



Connector

2



Lock Plate

1



Bearing Plate

1



2x Pitch Capped Shaft

1



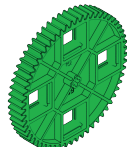
3x Pitch Capped Shaft

1



20T Gear

1




60T Gear

learn

Gears are great! They can help make things spin faster.

build

Build the same spinner from Challenge #6, this time adding gears. 

Flip

explore

+ Switch the gears so the 60T Gear is connected to the 5x Pitch Truss and the 20T Gear is connected to the Hand Crank. Give it a spin. What happens?

1



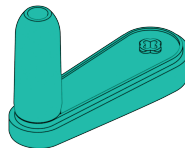
5x Pitch Truss

1



10x Pitch Truss

1

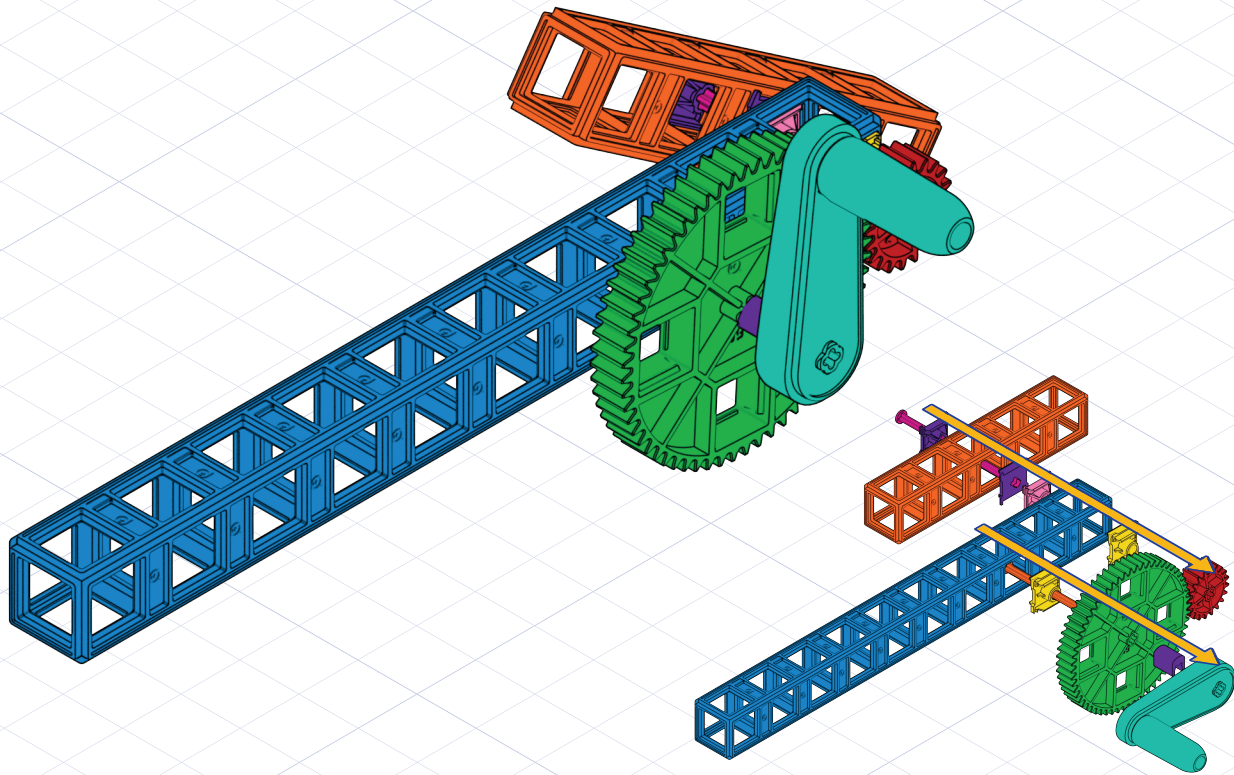


Hand Crank

1



Shaft Collar



parts

4



Bearing
Plate

2



Shaft
Collar

2



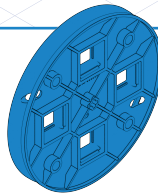
3x Pitch
Capped Shaft

1



10x Pitch
Truss

4



90mm
Pulley

4



100mm
Tire

learn

The 90mm Pulley and a 100mm Tire combine to make a wheel.

build

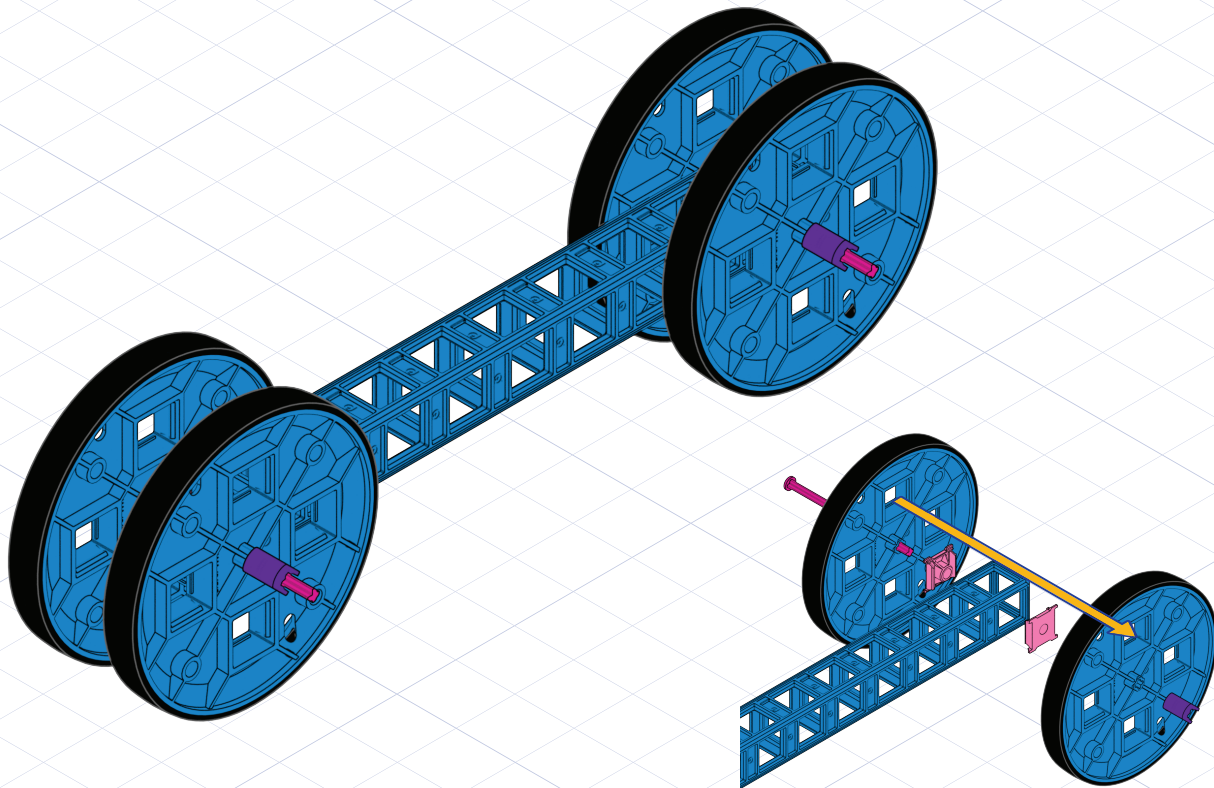
Stretch the tires over the pulleys to make four wheels. Then make a simple car.



Flip

explore

+ Add other parts to your car to make it more exciting.



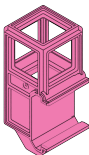
parts

10



Connector

4



Linear
Motion Bracket

4



3x Pitch
Truss

3



5x Pitch
Truss

1



10x Pitch
Truss

learn

Linear Motion Brackets help you slide. The rails fit into the groove on a truss so the part slides back and forth.

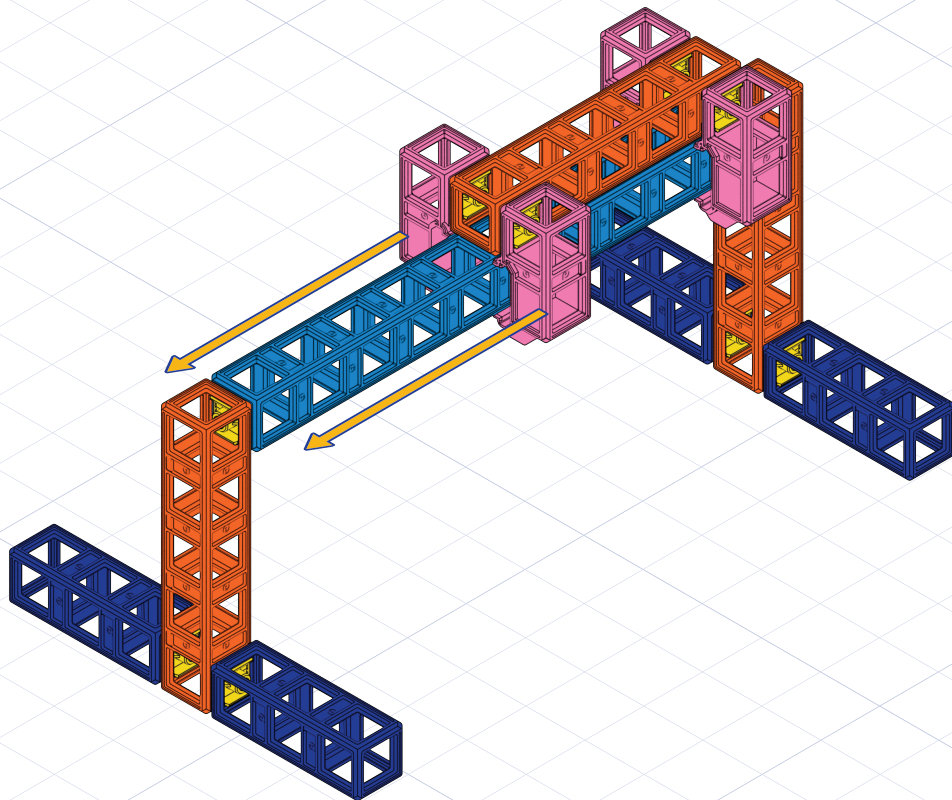
build

Build a small model of a monorail.



explore

- + Add something to the top of the monorail—maybe your stick figure from Challenge #3!
- + Make a longer monorail track.



challenge #10: drawbridge

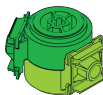
parts

7



Connector

2



Hinge

1



Rope Anchor

1



0.5m
Rope

6



5x Pitch
Truss

2




10x Pitch
Truss

learn

The Rope Anchor will help you attach rope to Snap parts.

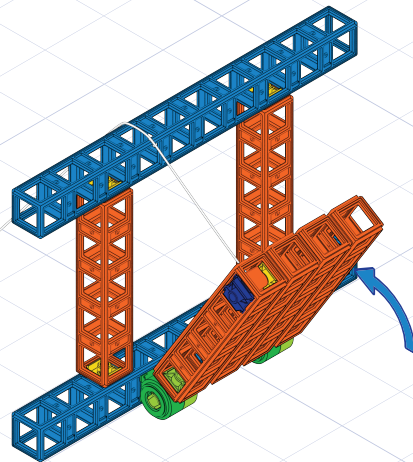
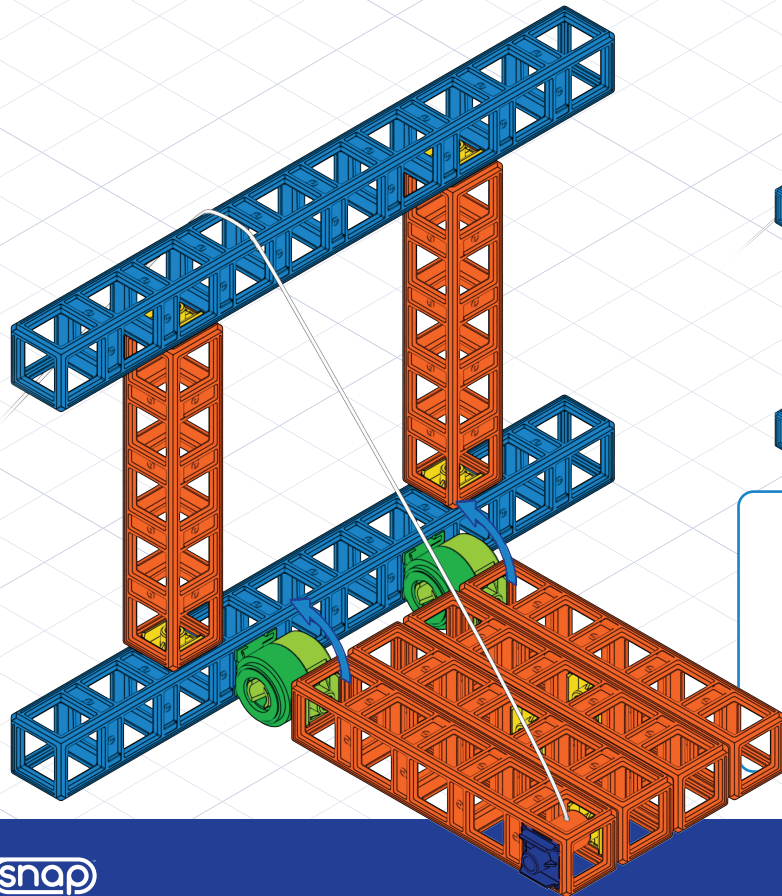
build

Build a drawbridge. 

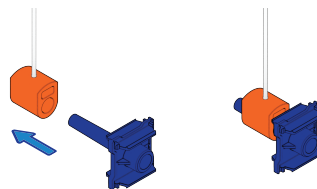
Flip

explore

+ This drawbridge can fall over pretty easily. Try to make it more sturdy.



attach your rope



parts

8



Connector

1



3x Pitch
Weighted Truss

3



1x Pitch
Truss

1



3x Pitch
Truss

2



5x Pitch
Truss

2



10x Pitch
Truss

1



0.5m
Rope

1



6x Pitch
Shaft

learn

The Spool makes pulling things with rope easy. Wind rope around the Spool to pull things in or lower them down.

build



Make a winch that can pull a weighted truss.

explore

+ Winches are used to help pull cars that get stuck. Could you make a winch on the front of a car you make out of Snap parts?

4



Bearing
Plate

1



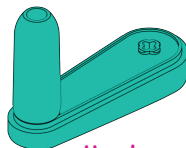
Rope
Anchor

1



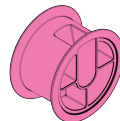
Shaft
Collar

1

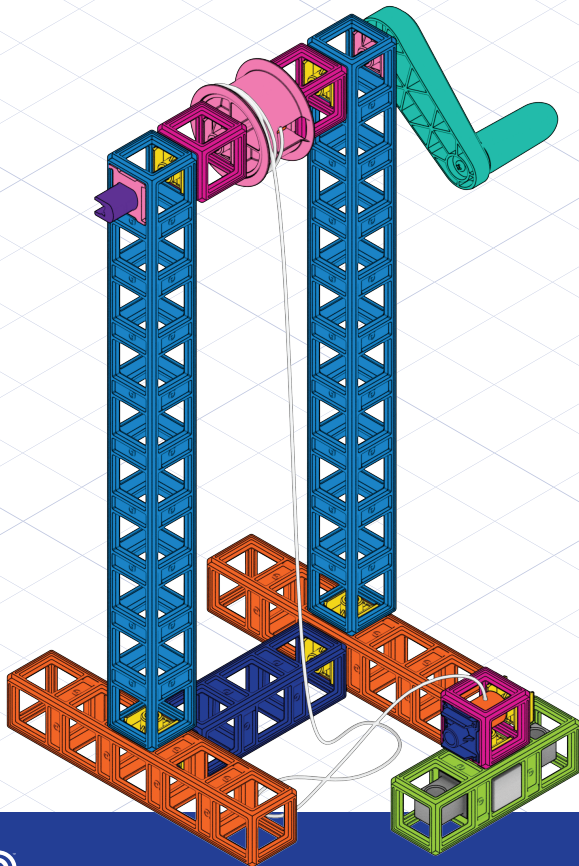


Hand
Crank

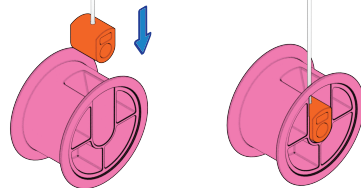
1



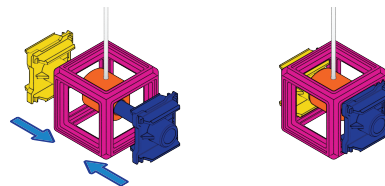
Spool



wind rope



attach rope



challenge #12: clamping cardboard

parts

4



Cardboard
Clamp



Cardboard

+ Any other Snap parts you want

learn

Cardboard Clamps help you attach cardboard to your builds. You might use them to make solar panels, a castle wall, or a parade float.

build

Use the Cardboard Clamps to build something amazing.

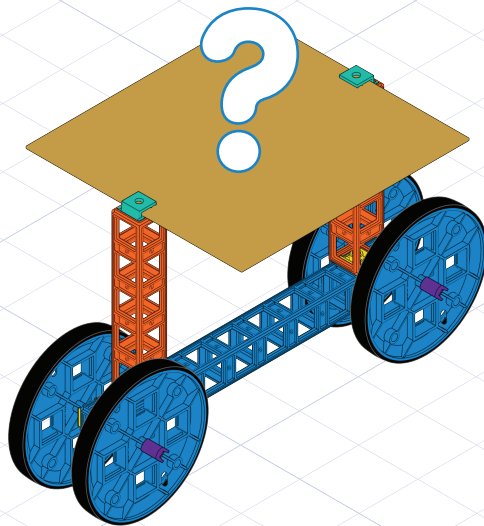
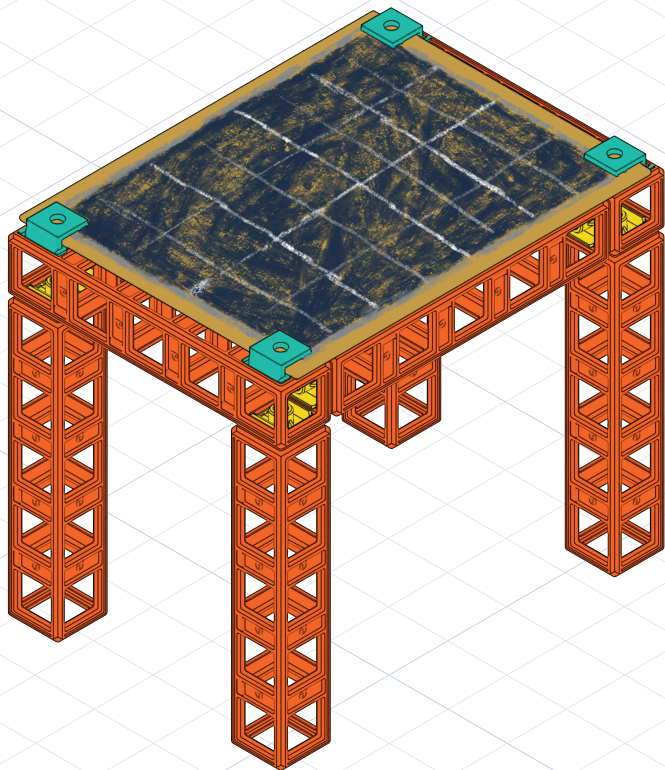


Flip

explore

+ Play around with how cardboard works with trusses. Do you want your trusses to be seen? Do you want the cardboard to hide the trusses?

+ If you build a castle, add your drawbridge from Challenge #10.



parts

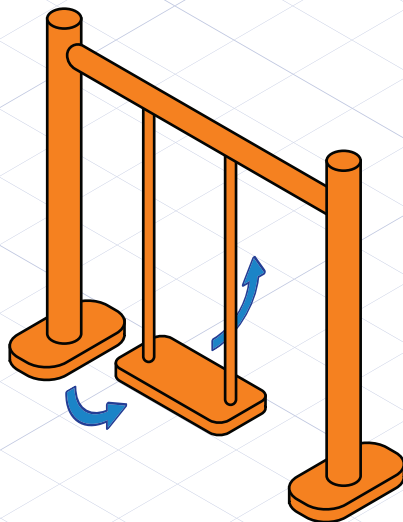
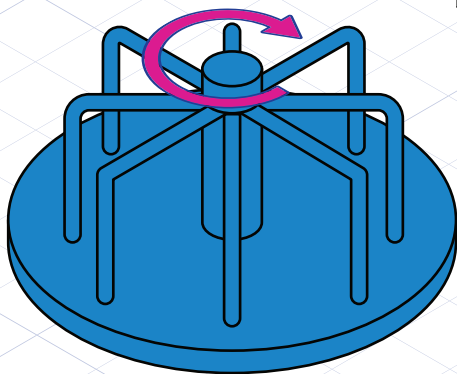
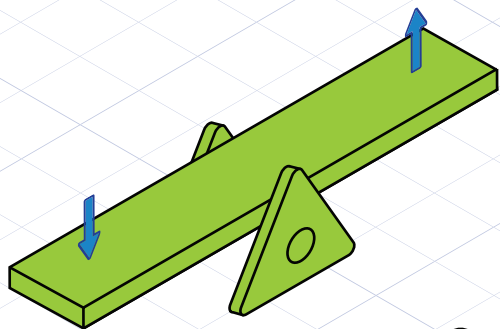
Your Choice!

build & explore

Think about the different things you see at playgrounds and parks. Use Snap parts to build at least one thing you might see there. A few examples might be:

- swing
- merry-go-round
- seesaw





parts

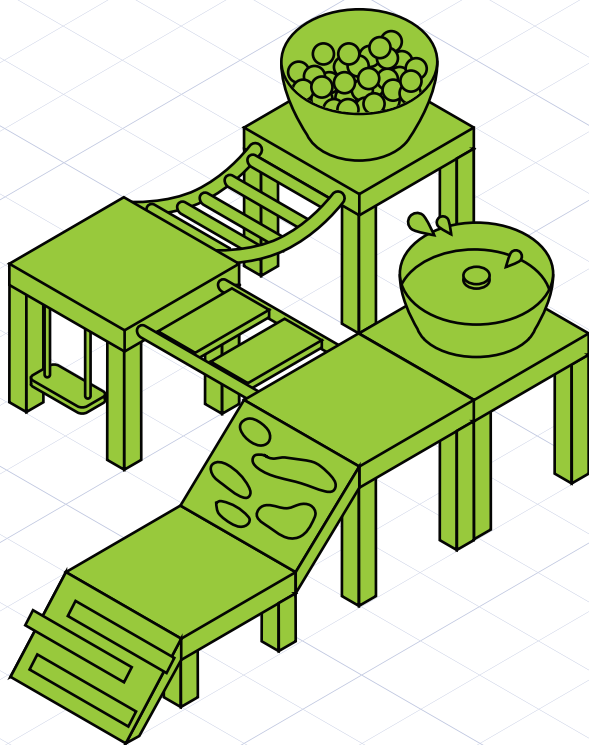
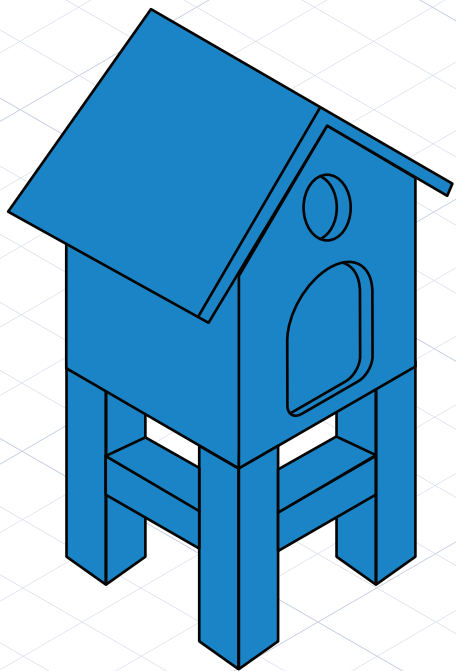
Your Choice!

build & explore

Choose an animal (real or imaginary!). Build a structure that helps it in its habitat. A few examples might be:

- a safe place to rest
- a way to get food or water
- something to help it move around





parts

Your Choice!

build & explore

Think about all the different things that use wheels. Use Snap parts to build at least one thing with wheels. A few examples might be:

- car
- motorcycle
- tricycle
- tractor



