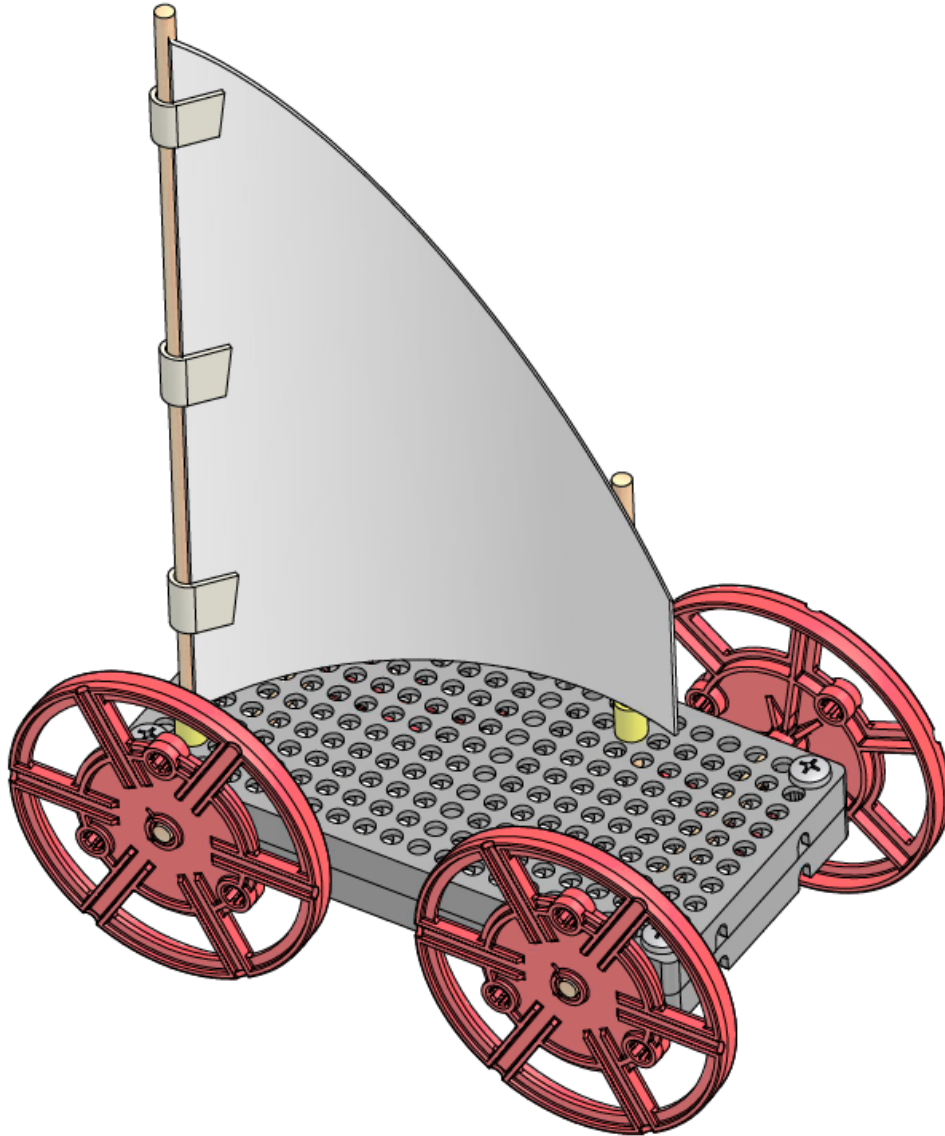




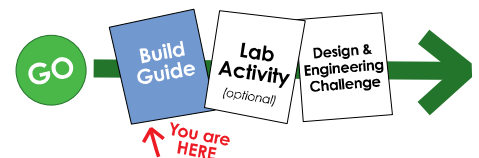
# Sail Car Build Guide



Harness the power of the wind to make a car go. This Build Guide will help you create your own Sail Car.



This is the JFF (just for fun) Build Guide. For deeper understanding and learning, download the LS "learn stuff" documents at [teachergeek.com/learn](https://teachergeek.com/learn)



LS and Challenge documents available at [teachergeek.com/learn](https://teachergeek.com/learn)



# Sail Car Build Guide



This guide will take you through the simple process of creating a Sail Car.

It is recommended that this step is done with the adult assistance/supervision.

## TeacherGeek Components

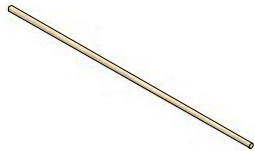
For One  
Sail Car

Here are the TeacherGeek components you'll need to make each Sail Car.

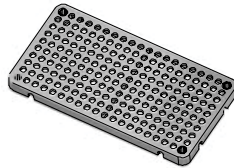
They are part of the TeacherGeek Sail Car Kit [single: SKU 1823-77](#) or [10 pack: SKU 1823-67](#), [Maker Cart](#), or available individually at [teachergeek.com](http://teachergeek.com).



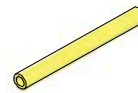
**4 Wheels**



**3 Dowels**



**2 Hole Plates**



**Slide Stop**  
(enough to cut  
two 1cm (3/8in)  
sections)



**4 Screws**  
(1in #10 Screws)

## TeacherGeek Tools You'll Need

Easy to Share  
in Groups

These are the tools you will need for the Sail Car Body Build.

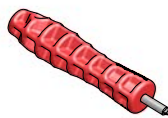
You will not need them for the Labs or Engineering Challenges. These tools are part of the TeacherGeek [Maker Cart](#), or available at [teachergeek.com](http://teachergeek.com).



**Multi-Cutter**

[SKU 1823-81](#)

Or anything else that can  
cut dowels & slide stop



**Reamer**

[SKU 1823-87](#)



**Phillips  
Screwdriver**

[SKU 1823-90](#)



**Hammer  
(optional)**

[SKU 1824-41](#)

*Caution: Tools are to be used by ages 13+, or with close adult supervision.*

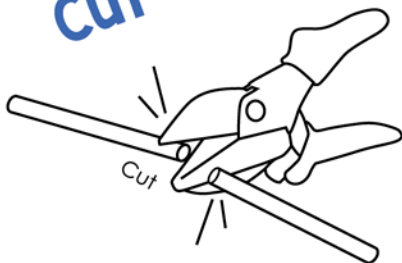


# TeacherGeek Build Guide

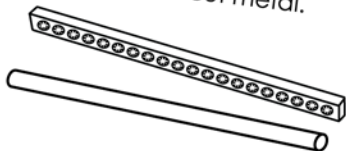


What do you need to know to make something out of TeacherGeek?

## Cut



**Multi-Cutters** cut wood & plastic (like **dowels** and **connector strips**). They do not cut metal.

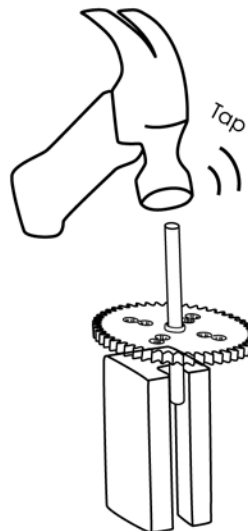


## Push, Wiggle,

Push, wiggle or tap **dowels** into holes.



## Tap



Use a **hammer** and **slider block** to tap **dowels** farther thru holes.

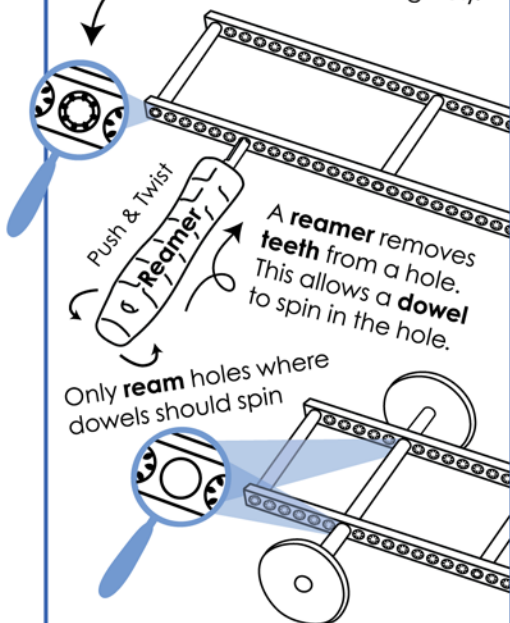
## Quick Tip!



Use a **crayon**, or **soap** on the end of a **dowel** to make building easier.

## Ream

Most parts have holes with **teeth**. The **teeth** hold **dowels** (keep dowels from falling out).



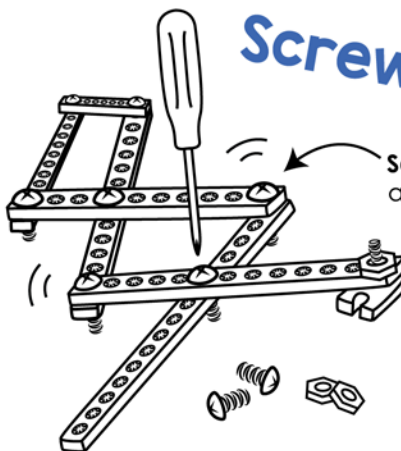
A **reamer** removes **teeth** from a hole. This allows a **dowel** to spin in the hole.

Only **ream** holes where dowels should spin

Never **ream** pulleys, gears, wheels, or any hole a **dowel** stays stuck into.

## Screws & Nuts

Do not **ream** holes you will put **screws** into.



**Screws (without nuts)** can connect parts, and allow them to rotate.

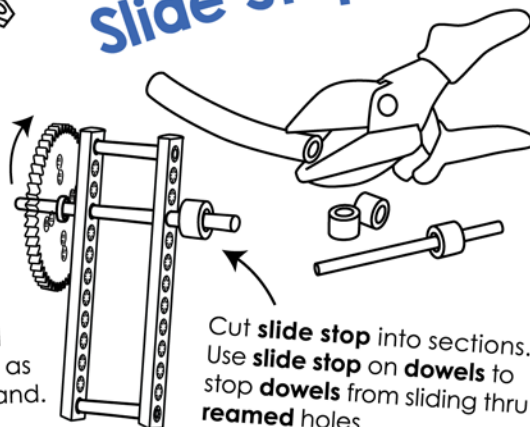
**Screws (with a nut)** can connect parts, and keep them from rotating.

## Stop Clip



Press a **stop clip** onto a **dowel** to keep it from sliding or use it as a hook for a string / rubber band. It takes little force to get it on.

## Slide Stop



Cut **slide stop** into sections. Use **slide stop** on **dowels** to stop **dowels** from sliding thru **reamed** holes.

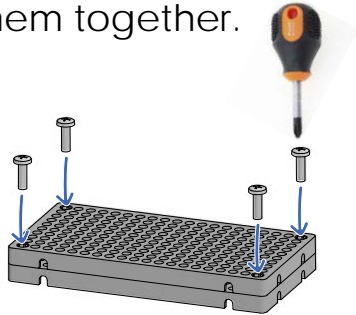
More resources available at [teachergeek.com](http://teachergeek.com).  
Adult supervision required for children 12 and under.



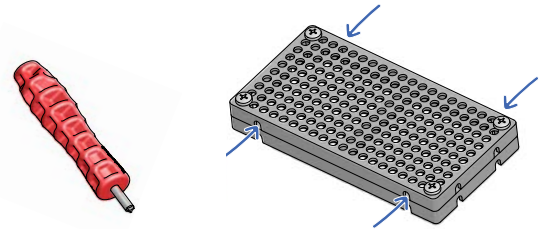
# Sail Car Build Guide

## Build the Body

- 1 Stack two **hole plates** on top of each other. Use four **screws** to attach them together.



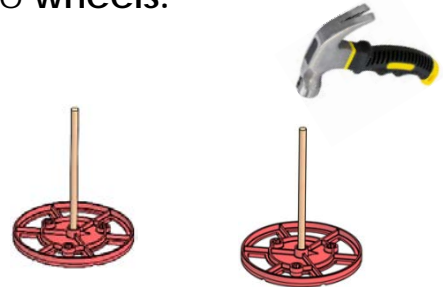
- 2 **Ream** the 4 holes that were created by attaching the two **hole plates**.



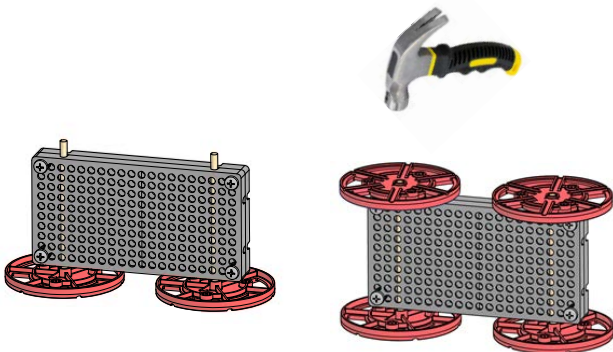
- 3 **Cut** two 11cm (4.25in) sections from one **dowel**. These will be your wheel axles.



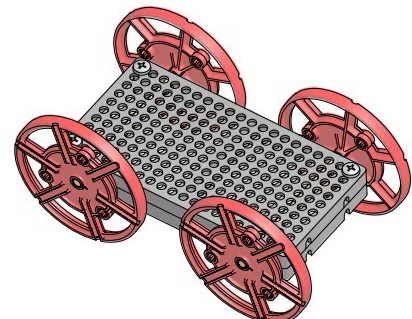
- 4 Push or tap the **dowels** from Step #3 into **wheels**.



- 5 Place the **wheels** with **dowels** from Step #4 into the reamed **hole plate** holes. Then push or tap on two more **wheels**.



- 6 **You did it! You made the car body.** Make sure the **wheels** spin easily. If not, try taking the wheels off and reaming the **hole plate** holes more.







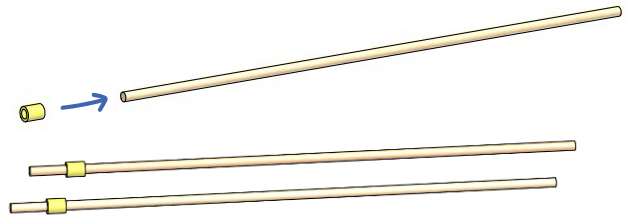
# Sail Car Build Guide

## Make the Masts

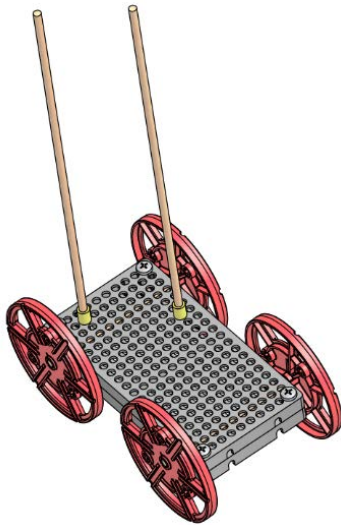
- 1 Cut two 1cm (3/8in) sections of **slide stop**.



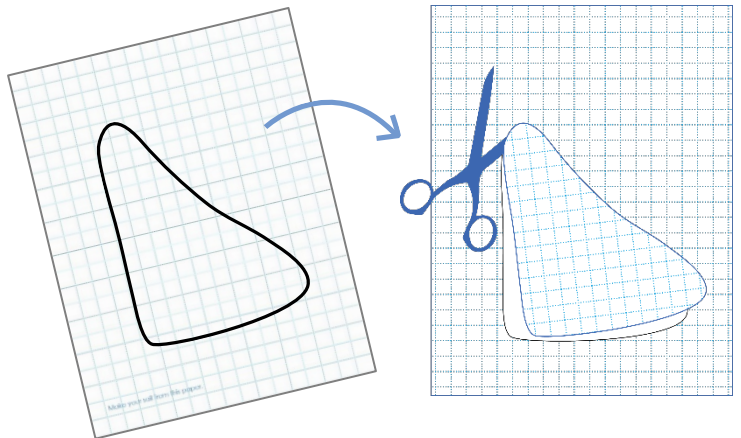
- 2 Place each **slide stop** section approximately 2cm (3/4in) onto an uncut **dowel**.



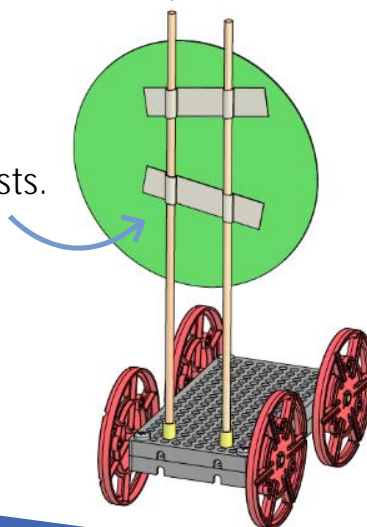
- 3 Place the masts into the Sail Car body. The masts will be used to attach the sails.



- 4 Draw a sail design and cut it out using scissors.



- 5 Tape your sail to the **dowel** masts.



## You're done!

Use a fan to push your Sail Car. Next, try the Design & Engineering Challenge.

documents at [teachergeek.com/learn](https://teachergeek.com/learn)



Make your sail from this paper.  
Print this page on cardstock for a stiffer sail.