

## **Design Notebook**

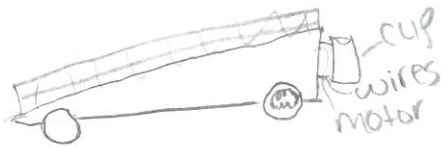
The following pages are taken from team Design Notebooks from past Junior Solar Sprint competitions that the officials picked out to use as examples. Note that the layout and specific content showcased are not official rules, but rather ideas and suggestions for creating the notebooks that the judges from that particular year liked.

Please refer to the official rules for what is required in each section.

# Testing and Improvements

Trial 2

Sketch	Data/Chart
<p data-bbox="440 1129 557 1157">Summary</p> <p data-bbox="196 1184 784 1394">Getting the gears to touch so the car can move. The car was not going in a straight line.</p>	<p data-bbox="1045 1121 1170 1148">Changes</p> <p data-bbox="810 1184 1398 1419">some of the changes we made were that we cut the wood more so it is lighter.</p>



How long: 60ft  
Time: 20sec  
Speed: 3

A chart is a good idea to use.

Needs a place to record the sun conditions

# Testing / improvements

4/4/17

Today we tested our car. We had issues on the gear touching the solar panel gear, so the car wouldn't roll. We tried changing the size of the gear to make it actually touch the gear. When the gear finally touched the other, we took it outside to test it and the car finally moved.

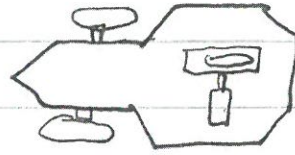
4/6/17

Now that our gear was fixed we went out and tested it. The car moved but not as smoothly as planned. The wheel wasn't spinning very good so we ended up gluing the wheel tightly onto the wooden board so it was stable.

Once the wheels were fixed the  
we ran a few  
Sure it was rolling  
was. The time

Be sure to include any problems & ideas to fix them

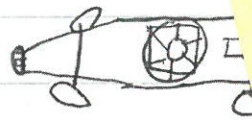
Trial ① Tried this car →



Success - direct drive, no gears  
fail - the balance is uneven  
because the motor is on  
one side making  
car tilt that way

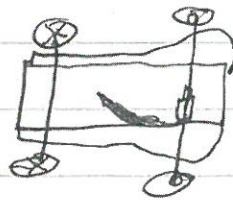
Nice extra!  
Summary page  
of 3 vehicles  
built & tested  
Documents work  
well

Trial ② Tried this car →



Success - moves slowly and  
from all recycled  
fail - the front wheel  
and friction occurs from the front  
wheel and the body,

Trial ③ Tried this car →



Success - moves fast (20 ft in 8.16 seconds)  
and moves smoothly.  
fail - nothing

3-1-2016

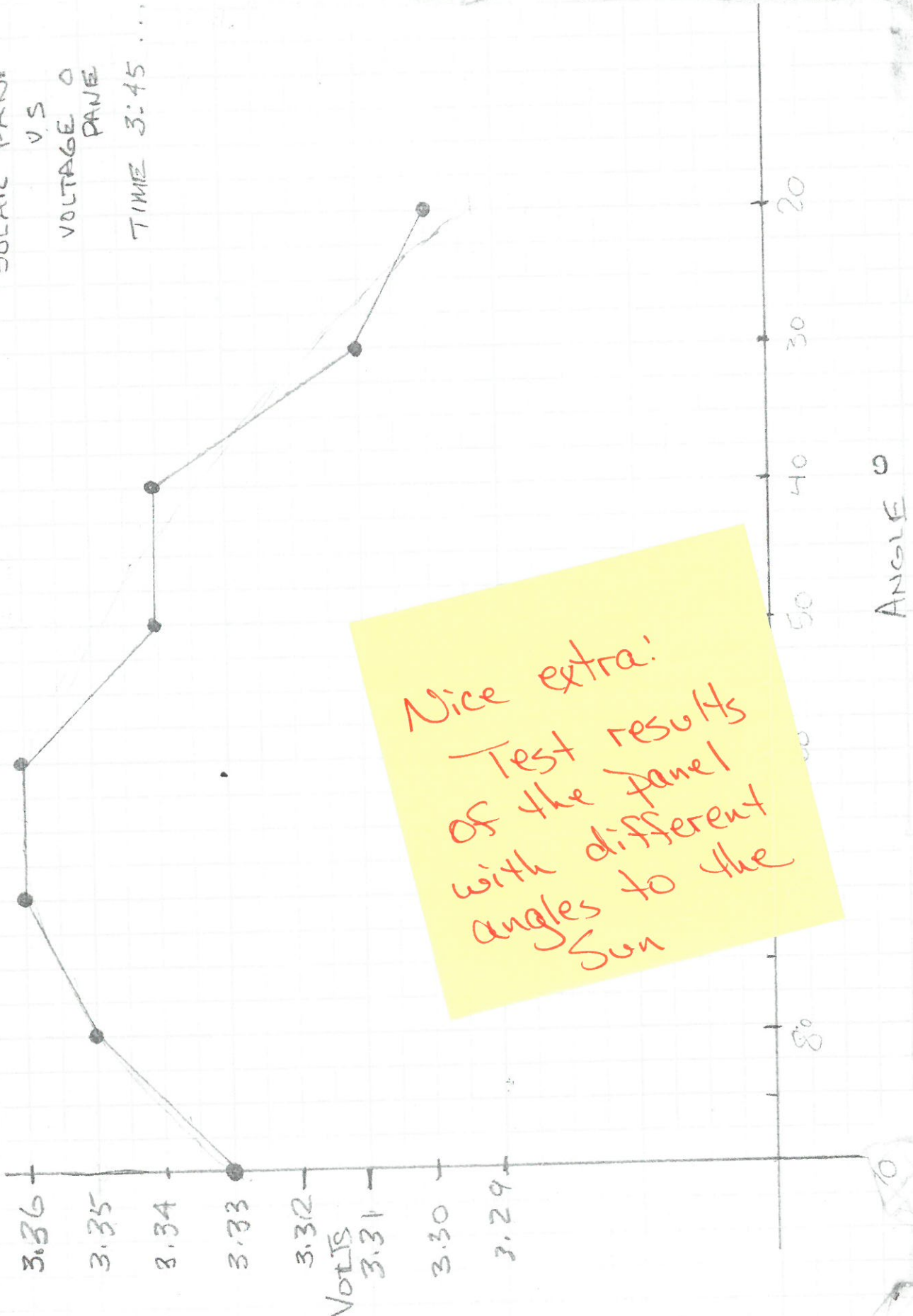
SOLAR PANEL

V.S

VOLTAGE O

PANEL

TIME 3:45



Nice extra!  
Test results  
of the panel  
with different  
angles to the  
Sun

## Motor Holder



The motor holder took several tries to perfect (the seventh and finished product is not included in the image provided, however it can be seen on the chassis image), as they each had problems of their own. The first prototype was printed with white filament, and it perfectly fit the motor. However, we decided we wanted to be able to fit more stuff onto the solar car if needed. The second prototype did not fit the motor at all. The extra piece sticking out of the motor completely extended over the extra part of the holder. The third prototype was too thick to hold the motor correctly. We also reduced the amount of material we used going forward. The fourth prototype did not work, as it was too thin, so we decided to build it in the middle of the scale size from the 3rd to the 4th prototype. However, the fifth prototype didn't work either as it was too thin again. We decided to put the motor holder scale size  $\frac{3}{4}$  of the way through the third and the fourth prototype. However, the sixth prototype was accidentally printed wrong, so we were not able to fit the motor correctly into it. The seventh and final prototype included part of the chassis, and fit the motor just right, so we decided to go with it.

Nice extra:  
Documents work  
done on one  
component of  
the car