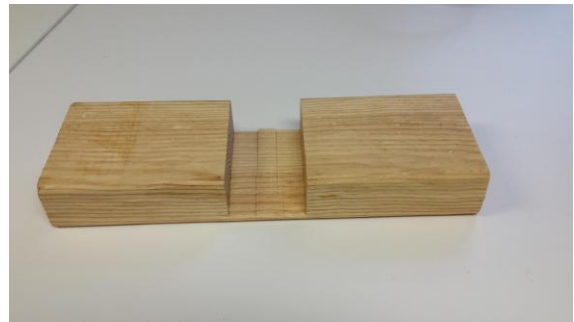


## Directions for Making Albedo Spinner

### Base:

#### Option 1:

A base can be cut to hold the motor between two 4x4 blocks and no plywood is needed for a base by making a dado joint. The space for the motor may have to be customized to fit the motor.



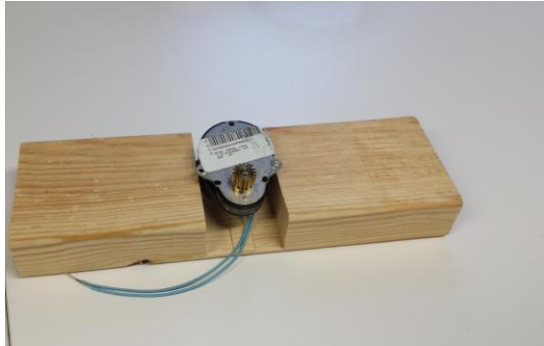
#### Option 2:



1. Cut two 2in x 4in x 5in pieces of wood.
2. Cut one of the pieces 2in x 4in with a 45° angle on end using a mitre box.
3. Cut plywood 12in x 6in.
4. The two pieces will be anchored on the plywood board and will hold the motor between the two pieces.

## Inserting the Motor onto the Base:

1. Align the motor between the 2in x 4in blocks ( or between the supports seen in Base Option 1 and 2).



Base Option 1



Base Option 2

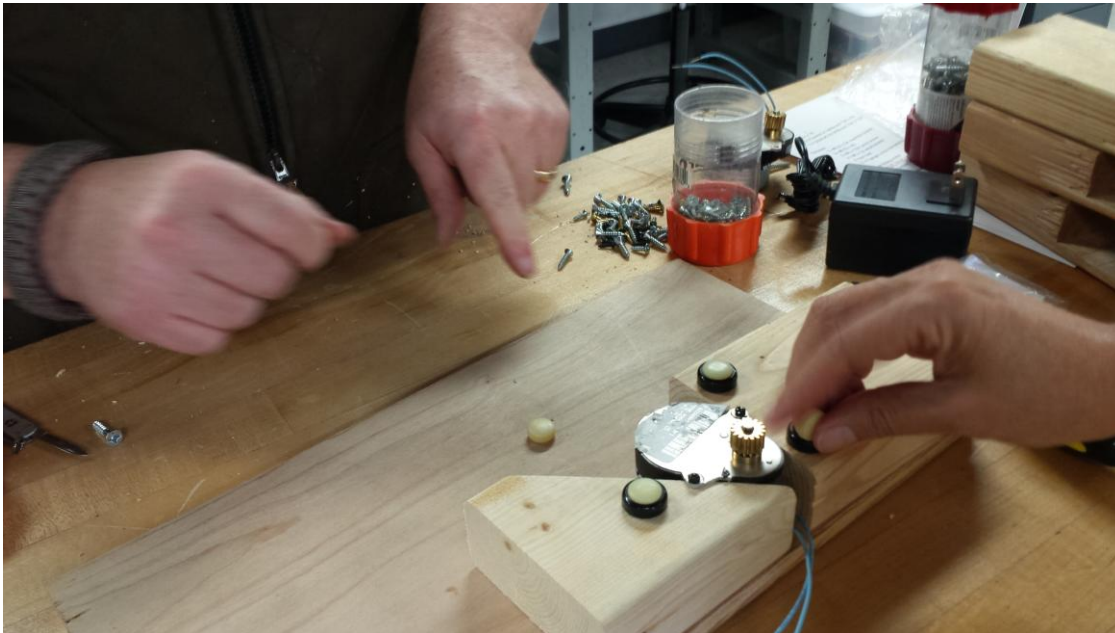
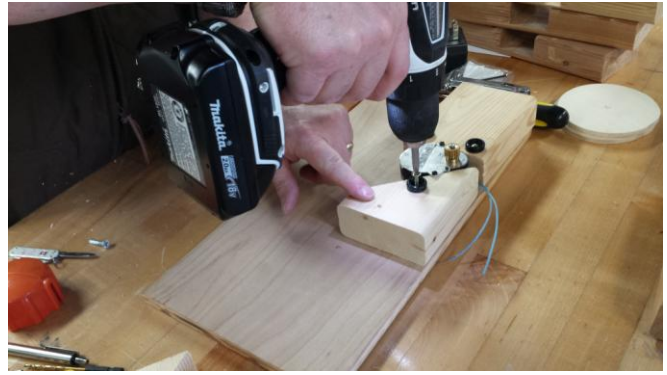
2. Mark the holes for screws for the motor.
3. Drill 1/16in hole at the holes marked.
4. Use the #4 wood screws to connect the motor to the 2in x 4in blocks.
5. Turn the blocks and motor over, placing them on top of some identical blocks to be able to attach the plywood.
6. Place the 12in x 6in plywood on top of the blocks and motor.



7. Drill four 1/8 in holes through the plywood and into the wood blocks. Don't drill through the wood block.
8. Use a screwdriver to put the #6 wood screws to secure the plywood to the wood blocks.

## Finishing the Spinner:

1. Add casters on the wood blocks to insure the disc will rotate easily.
2. Pop the caster covers into the caster anchors.



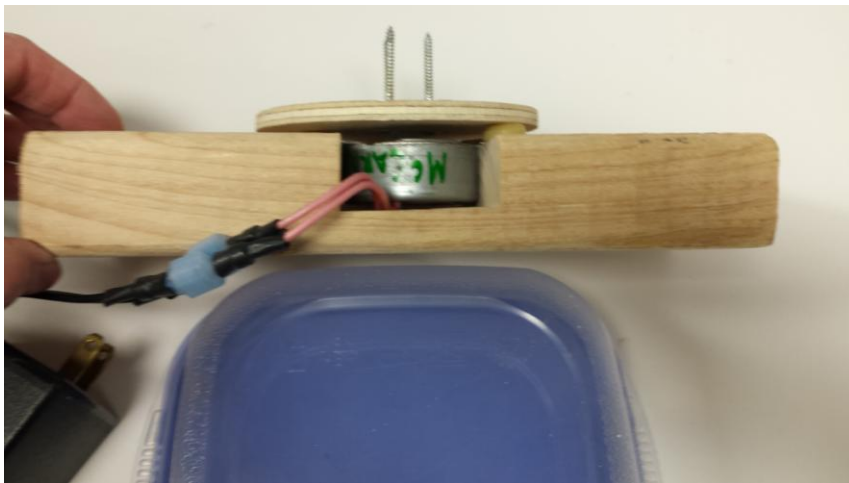
3. Drill a  $\frac{1}{2}$  in hole in center of the circular disc.
4. Use dremel tool to enlarge the central hole in the disc until it fits the center gear of the motor.



5. Drill 3 x  $\frac{1}{8}$  in hole 2in from the center of the disc at  $120^\circ$ .



6. Place #6 machine screws into each  $\frac{1}{8}$  in hole and secure with a nut from the top of the disk.
7. Nail feet onto the 2in x 4in blocks so that the disk will ride on them.
8. Place the disk on top of the motor.
9. Cut off the connector at the end of the transformer.
10. Separate 1 in of the two wires on the end of the transformer.
11. Strip the ends of the transformer wire.
9. If the ends of the motor wire are not stripped, strip them.
10. Insert the stripped wires into the crimp connector and crimp them securely.
11. Check all wire connections for fraying or loose connections.



12. Plug in transformer for 10 seconds, checking for arcs, sparks or fires.

13. If there are no problems, plug transformer in and time 5 complete revolutions. Divide time by 5 to get the period of rotation.
14. Place object onto three machine screws and check that it is stable throughout rotation.
15. Use Kepler Light Grapher to create light curve of object.

<https://kepler.nasa.gov/education/ModelsandSimulations/lightgrapher/index.cfm> #

