Kre8 Fairground - Introduction

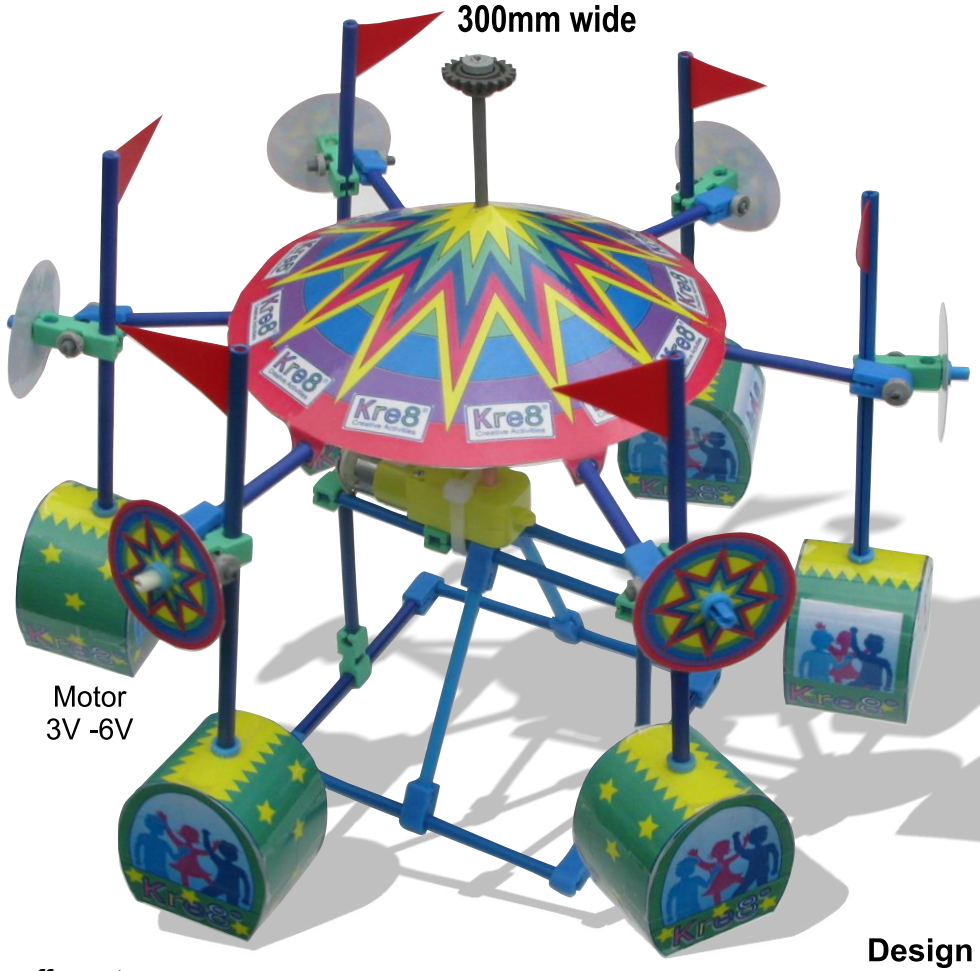
Contents

Activities

After assembling this model make it spin and watch the podules swing out.
Making activities:- (pages 3-5)
1) Make the structural body frame out of Kre8 connectors and tubes.
2) Attach the geared down motor to the body frame.
3) Cut out the decorative parts used for the podules and the top.
4) Assemble the top part and add the frame.
5) Wire up and test

Key Words

Electric circuit, centrifugal,balance, off-centre, control, power, voltage, rotation, assembly using a kit.
Safety - using heat for shrink sleeving on wires. Optional - Motor control using microprocessor to replace battery pack.



Battery pack with on / off switch to make it work
(or use a Microprocessor to control it)

Educational Benefits

Making and understanding a construction kit. Reasonably complex product that combines simple electrics (electric motor), mechanism (speed reduction) and structures (frame and decoration).
Personal Skills - Sharing in a practical making experience, quality outcome, testing, successful working towards an defined outcome. Making a technical product. Co-operation and teamwork, able to follow instruction, role-play, problem solving, testing and evaluating. Possible links with science, maths and computer control.

Extra challenges

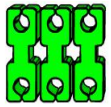
a) Experiment with the way the podules are added. Can be adjusted up and down to affect they way they swing out.
b) Change the design as wanted.

Computer Control
Control it using a microprocessor capable of driving the motor, such the Brainy-USB or the Brainy-Motor microprocessors.

Design opportunities
Design and decorate as you want instead of using the top provided.

Tools and equipment needed
See next page called 'Parts'

Kre8 Fairground - Parts

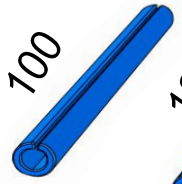


4 x green connectors

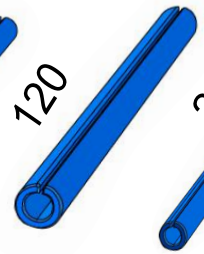
5 x Blue clip connectors

1 x 4mm grey tube

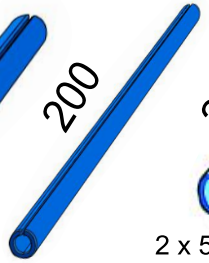
2 x 4mm grey(gray) snap rod



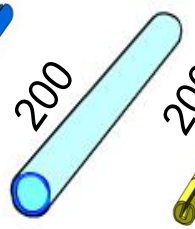
10 x 5mm dia. slit rod



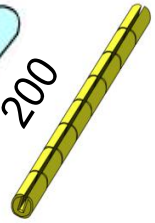
4 x 5mm dia. slit rod



6 x 5mm dia. slit rod

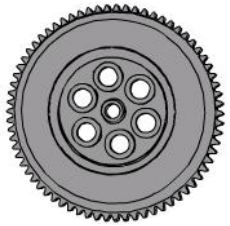


2 x 5mm dia light blue tube



2 x 5mm dia Yellow snap

1 x small gear 20mm
(for top decoration only)



1 x 70mm gear

1/3 x red plastic strip
(cut up to make flags)

Abrasive paper

(Use to round ends of tubes)

1 x 200mm ribbon cable

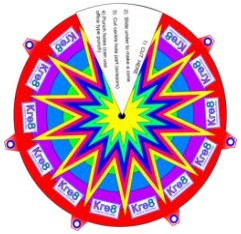
heat shrink 1 x 60mm long
(users - cut in half)

1 x 3V battery holder
(uses 2 x AA battery)

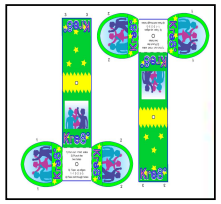
1 x geared motor

1 x 2mm steel rod

1 x plastic tie 200mm long



1 x Top
(laminated)



3 x podules sheets
(laminated)

18 x blue collars

16 x grey collars

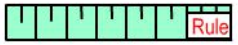
1 x resealable bag

1 x 5mm rubber tube

Go to
www.kre8.com
for your free
instructions
find via
Microprocessor tab

1 x paper insert

Tools



ruler

Snips

Hole punch

Clear tape

Kre8 Fairground Making - 1 of 3

Making the Frame

All sizes in mm

TO MAKE

Use these 'step-by-step instructions' as a guide and adapt as you want.

NOTES

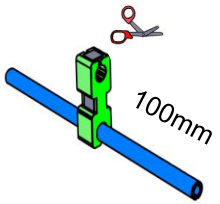
1) Use metric ruler for measuring

2) For **EASY assembly** -

a) Smooth and **round the end of the rods** with abrasive paper then

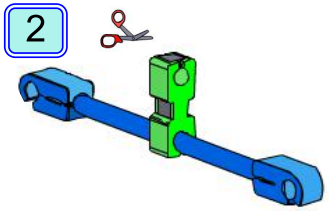
b) **Push and twist** the rods into place.

1



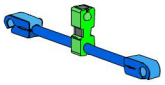
Cut and trim a single green connector and place on 100mm long slit rod

2



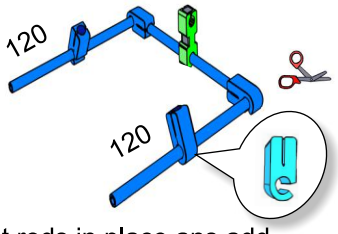
Add single clip connector at each end

3



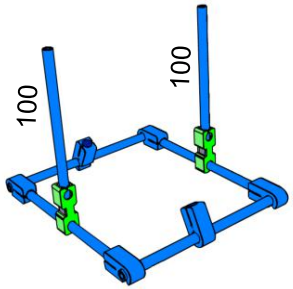
Make a **second** copy

4



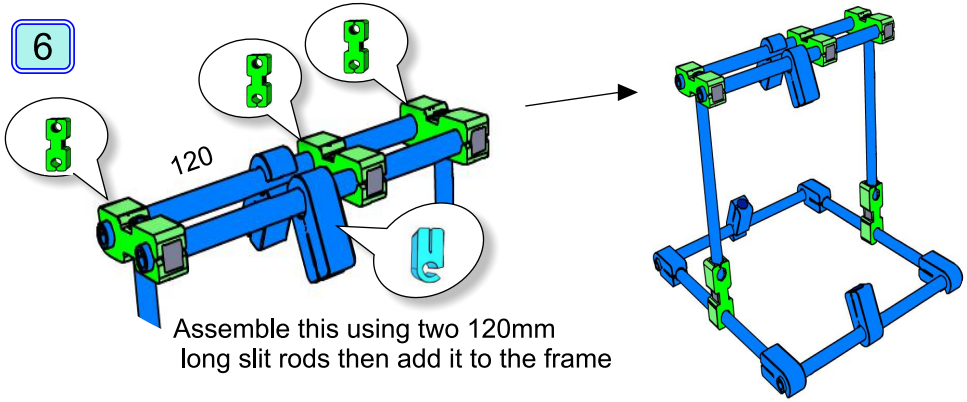
push slit rods in place ans add clip connectors

5



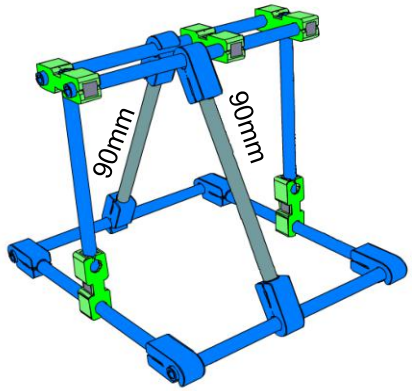
Add other end and add the two vertical slit rod uprights

6



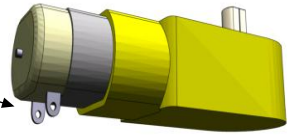
Assemble this using two 120mm long slit rods then add it to the frame

7



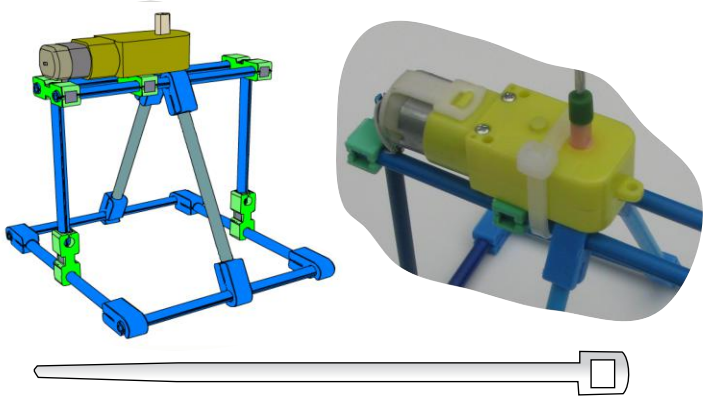
Cut light blue tube 90mm long and add as shown

8



It is a good time to add wires to the motor now (can be done later)

9



Tie the motor on using the plastic tie

Using the Plastic Tie

Wrap the tie round the motor and frame as shown then thread the thin end through the slit in the large end.

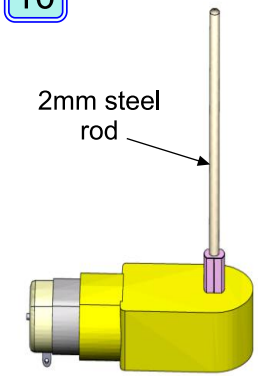
To get it very tight pliers can be used to pull.

BE CAREFUL

Only use when needed -

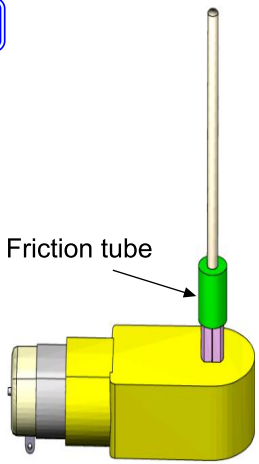
It cannot easily be undone

10



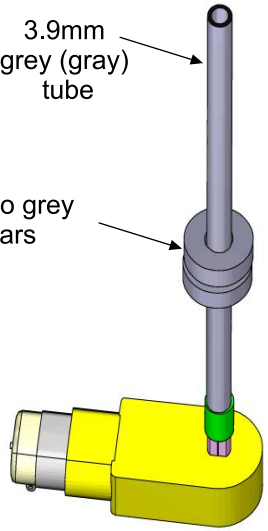
Push the rod into the hole in the motor driver axle

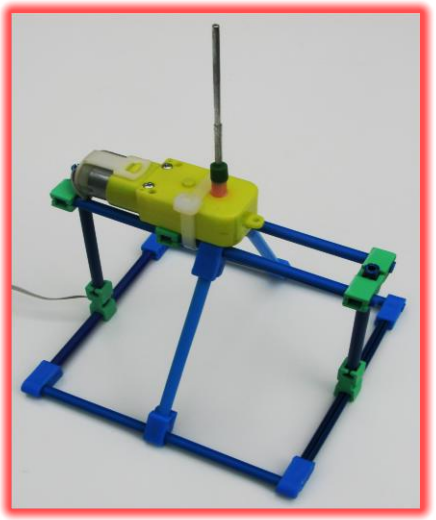
11



Add the green friction tube

12



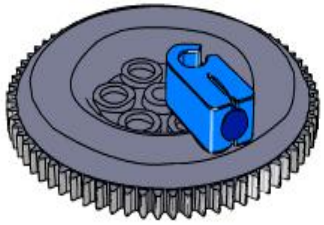


Motor fixed to the frame

Top arms being added

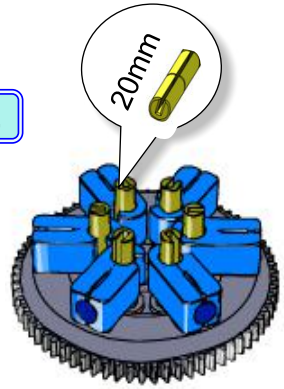
Making the Top

1



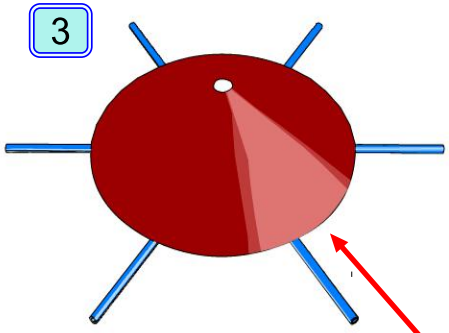
70mm wheel

2



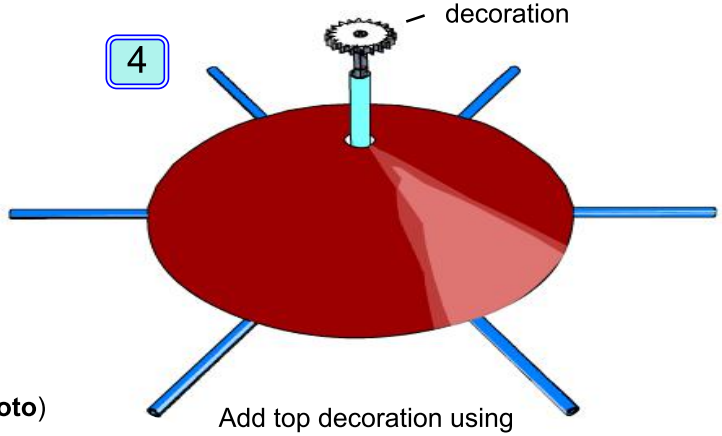
Connect blue connectors using two divisions (20mm) of 'yellow snap off' rod

3



Slide the 100mm long slit rods through the top cone holes **(see photo)** and push into the blue connectors just added on top of the large wheel.

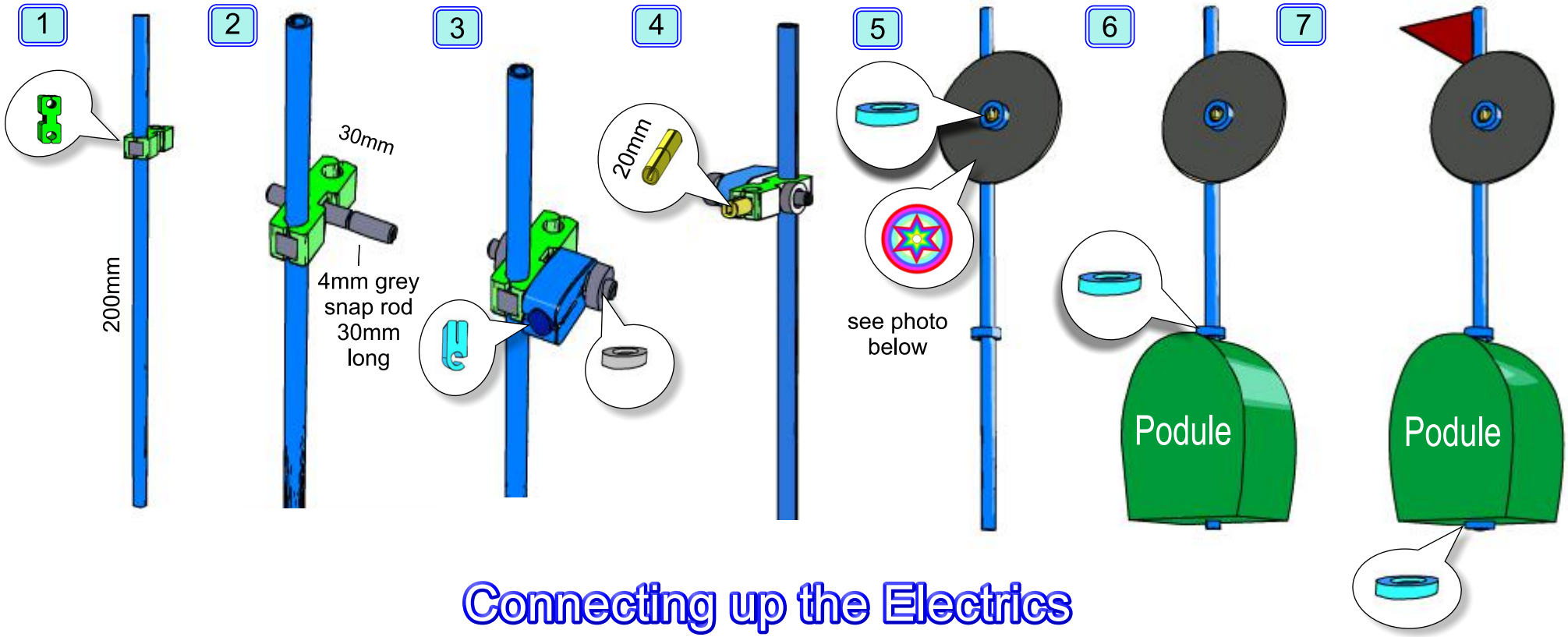
4



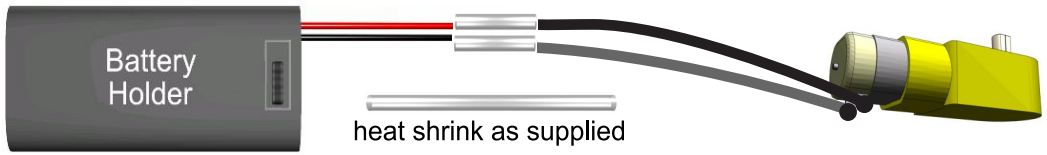
Add top decoration using small gear join using small piece of grey snap rod and light blue tube.

Kre8 Fairground Making - 3 of 3

Making the Swinging Podules



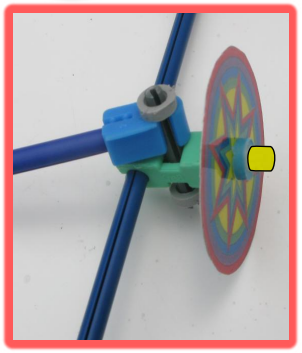
Connecting up the Electrics



1) Cut heat shrink tube in half then slide along battery wires.
2) Join wires by twisting (may need to expose more bare wire first)
3) Slide the heat shrink tube over the twisted joints.
4) Heat the heat shrink plastic and it will shrink tightly.

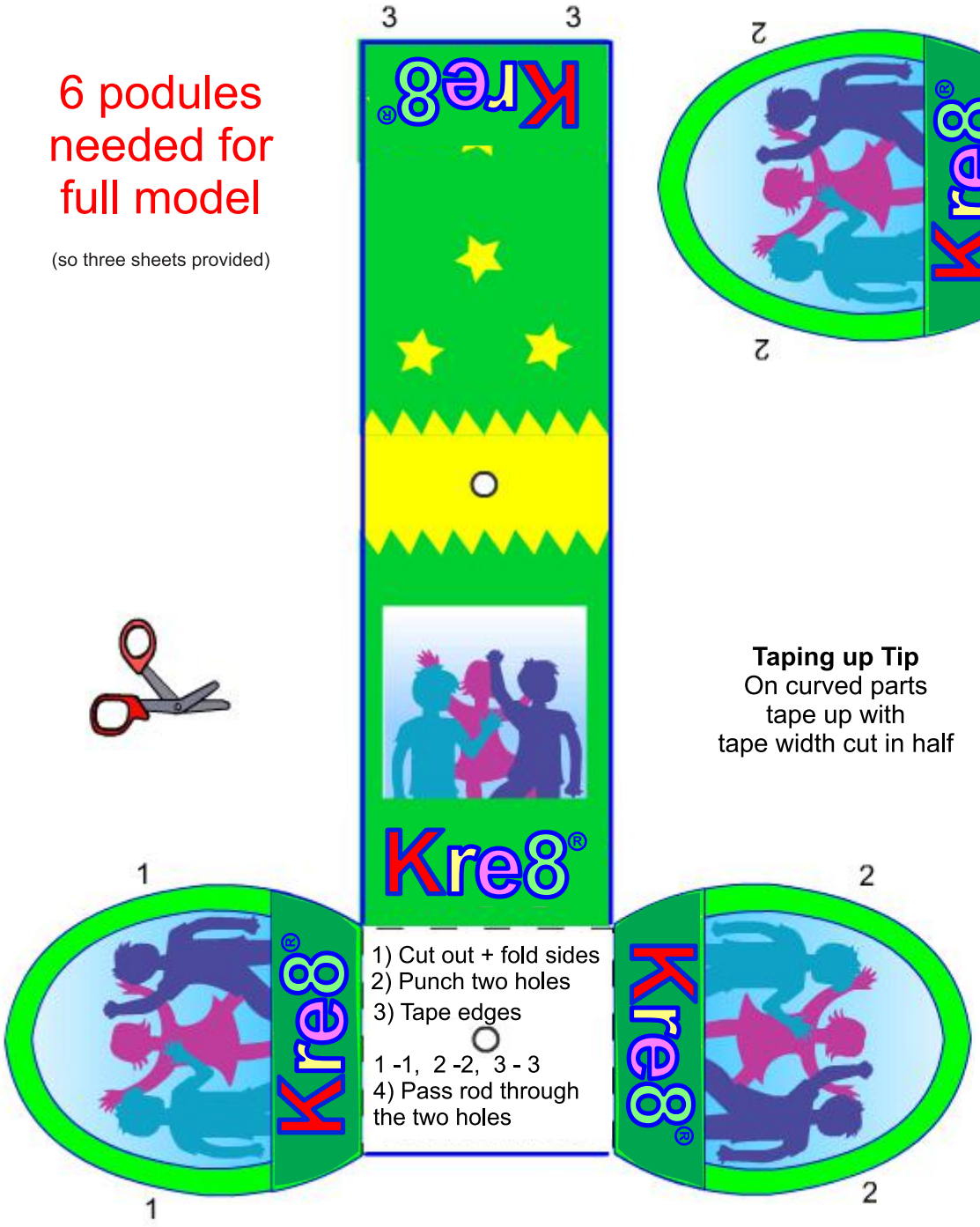
SAFETY - ADULT SUPERVISION NEEDED
if heat shrink tubing is used.
(wires can be twisted together and
taped up together up instead)

Note
Possible ways to heat -
1) Use near to the end of a soldering iron
2) Paint stripper heater

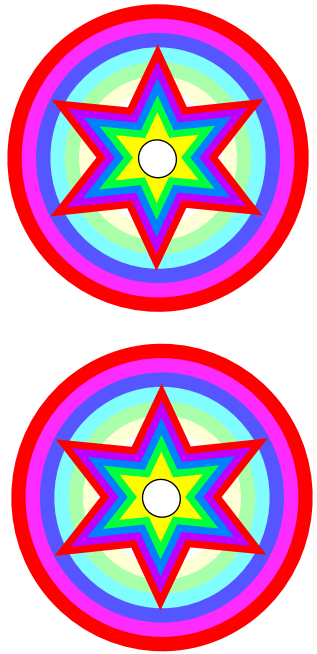


6 podules needed for full model

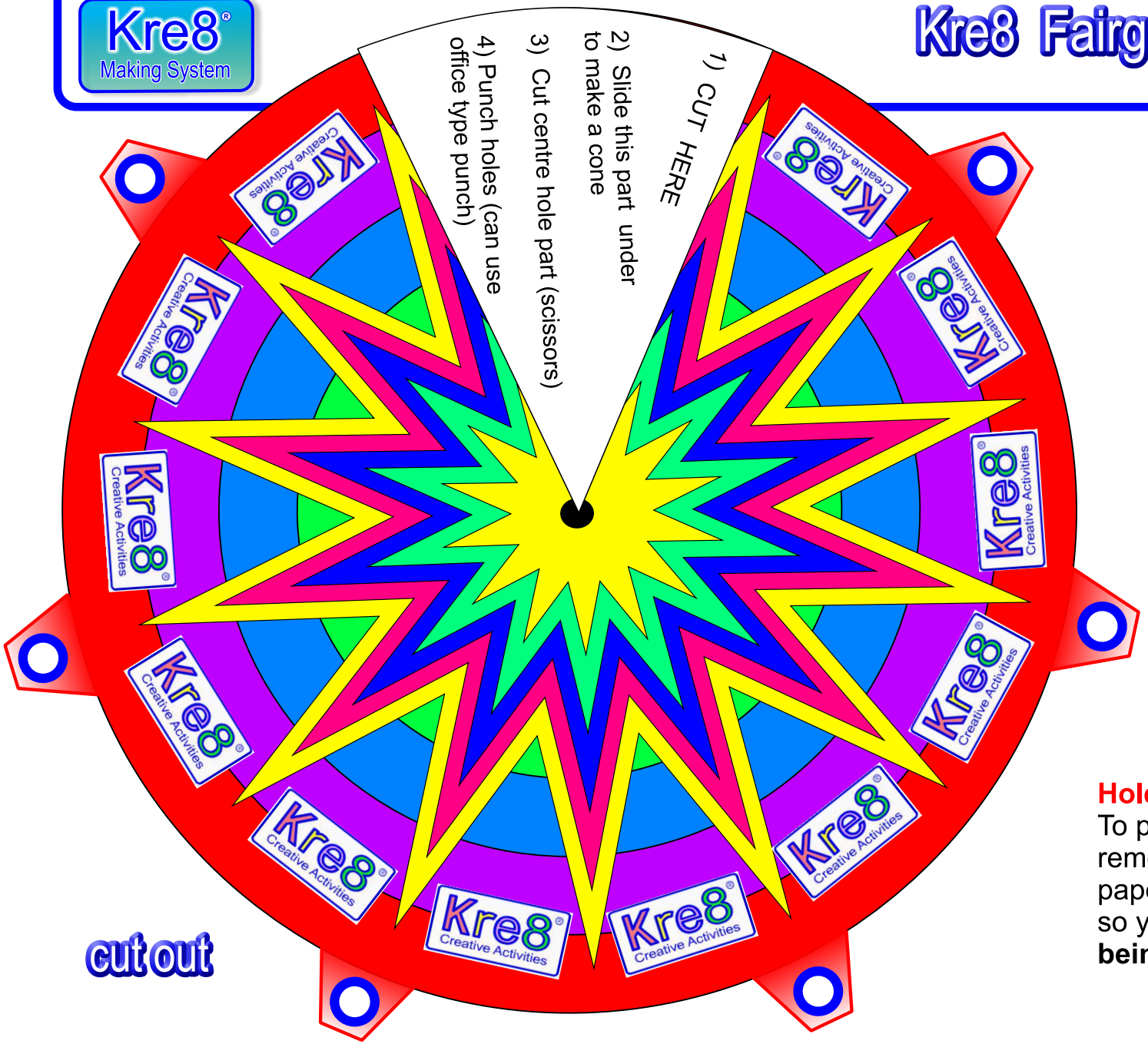
(so three sheets provided)



Taping up Tip
On curved parts
tape up with
tape width cut in half



Personal Decoration
Can use the other side
of these parts if preferred
or trace round and make own.



cut out

Top needed

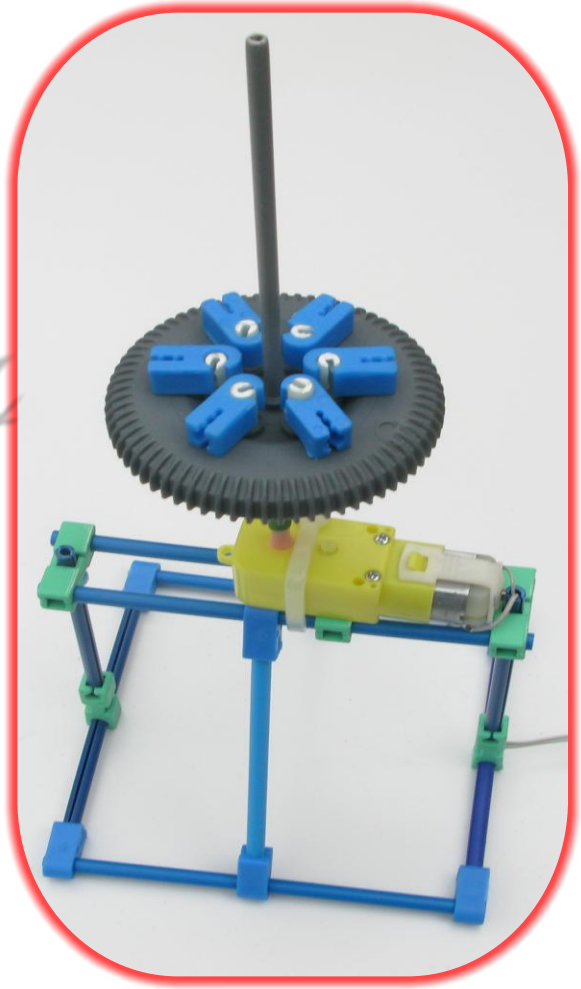
Tabs

punch the holes

Hole punching TIP

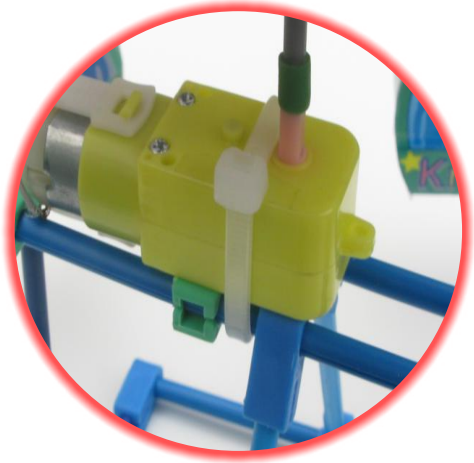
To punch the holes very accurately remove the back from an ‘office paper punch’ and use it upside down so you can accurately **see the hole being punched from the back**.

Pivot for podules



base unit

Wires can pass though tube



Cable tie used to hold motor