

Resource Checklist

Making materials

You might find it worth working with your D&T department as many of these materials will already be available within your school.

Balsa wood - for boat hull

Thin Balsa wood is best to make it easier for students to cut with craft knives

Hot glue guns and glue - for boat hull

Use to glue Balsa wood sections to make boats watertight. Likely to be used by students to glue servo motors to the boat. This could include having a gluing station monitored by adults or older students - check with your safety officer.

Velcro tape - for attaching micro:bit and motors

Useful to avoid putting hot glue on components and the micro:bit. Can be used to remove and reattach the micro:bit when necessary to the board.

Aluminium foil tape - for boat hull

Useful to reduce the amount of hot glue needed to make the boat watertight and to reduce the weight.

Cutting knives and boards - for cutting Balsa wood

Check with your school's safety officer for best approach and suitable knives. Ensure safety knives are used to avoid cuts and injury.. This could include having a cutting station monitored by an adult or older students. A3 cutting boards are advised.

Card and markers - for decoration

Students will like to make their solution individual and this provides an opportunity for them to add their team stamp and can support their presentation.

Screwdriver set - for attaching servos to micro:bit

Mini screwdriver sets are useful for students to attach their chosen wheel end to their servo motors.

Metal rule and pencils - for marking out boat sides to cut on Balsa wood

For marking out the cuts needed on the Balsa wood for the boat hull.

Inflatable paddling pool - for testing prototypes and solutions

The pool doesn't need to be filled with water just enough to pass the length of the paddles designed on the boats.

Example checklist per event (approx) 30 students

8-10 glue guns
8-10 cutting boards
8-10 craft knives
4 x velcro tape roll
2 x aluminium foil tape role

Example checklist per group

3 x Balsa wood sheets
2 x sheets of card
3 x markers
1 x mini screwdriver set
2 x metal rule
2 x pencils



Resource Checklist

Digital equipment & components

Laptops or tablets

One laptop or tablet per group (3-4 students) will be adequate. This can be used for research, creating their presentations and for coding the micro:bits. Should internet connectivity not be available be sure to download the local micro:bit MakeCode environment.

micro:bits

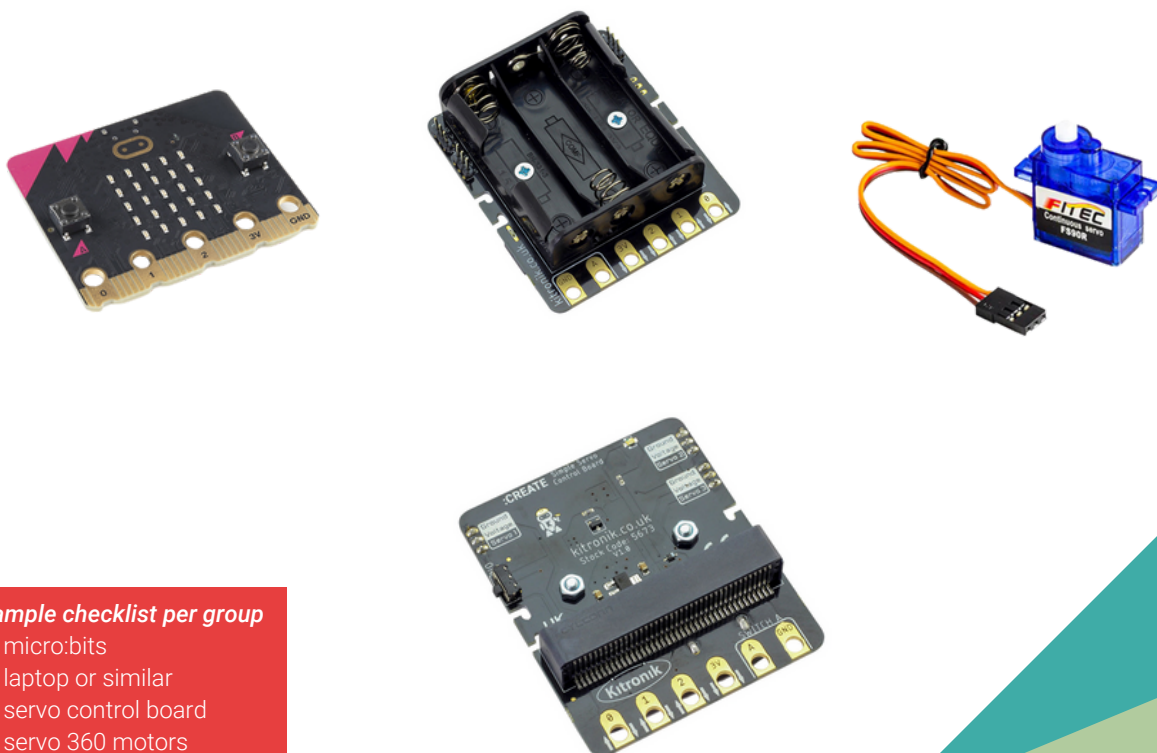
Two micro:bits per team works best so they can make use of the radio function if needed.

Servo control board

One servo control board is required per team. Ensure that enough batteries (for this case study 3 x AA batteries were needed for each team).

Servo 360 degree motors

Make sure servos are 360 degrees to ensure full rotation of the paddles that will be attached to the boat. Two or three motors will be sufficient for each group.



Example checklist per group

- 3 x micro:bits
- 1 x laptop or similar
- 1 x servo control board
- 3 x servo 360 motors