

# 2020 3M Young Innovators Challenge



## AeroTech Challenge

### Materials list 2020

#### Permitted materials – Aircraft

- ▶ Paper and cardboard
- ▶ Foam
- ▶ Polystyrene
- ▶ Table tennis balls
- ▶ Pipe cleaners
- ▶ Drinking straws
- ▶ Thin plastic sheet
- ▶ Balsawood
- ▶ Balloons
- ▶ Aluminium foil and other thin film or foil
- ▶ Thread, string
- ▶ Adhesive tape, glue, elastic bands or other fastening/connecting materials
- ▶ Blu-Tack™, Plasticine® or similar
- ▶ Paperclips
- ▶ Lightweight decorative materials

#### Excluded materials

- ▶ Carbon fibre sheet
- ▶ Pins or metal fastenings

**Very important:** please ensure the aircraft does not have any sharp edges which could cause injury during flight.



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### Permitted materials – Launching device

- ▶ K'Nex®, Lego® and Meccano®
- ▶ Wood including bamboo sticks, lollipop sticks, dowel or sheet
- ▶ Corrugated or flat plastic sheets
- ▶ Foam
- ▶ Polystyrene
- ▶ Plastic tubing or guttering
- ▶ Paper or cardboard in any form
- ▶ Rope, string, wool or other thread
- ▶ Wire
- ▶ Elastic or elastic bands
- ▶ Balloons
- ▶ Bicycle or hand pump
- ▶ Levers and pulleys
- ▶ Foil, film or other similar sheet materials
- ▶ Paper clips, staples, split pins, glue guns, adhesive tape, glue or other similar connecting materials

### Excluded materials

- ▶ Commercial rocket launching kits

### Dimensions

- ▶ The aircraft must weigh no more than 250g including any attachments necessary to connect it to the launching device. There are no restrictions on its dimensions or wing span
- ▶ The aircraft can be of any type e.g. aeroplane, jet, airship, glider, bi-plane, rocket or helicopter. Aircraft that make use of relevant design principles will score more highly than just a simple projectile
- ▶ The launching device must be no larger than 1 metre in height, width or length. There are no restrictions on its weight but it must be easily transported to 3M for judging. Very minor assembly can take place prior to testing. Designs that use particularly innovative means of launching will score highly
- ▶ The aircraft must be released/propelled by the launcher; it may not be launched by a person by means such as throwing or kicking

### Forces acting on an aircraft

