

AEROMODELLING ABSTRACT

First of all I want to make simple soarer to gain experience and then start making a trainer (4-channel) plane with more maneuverability.

1.Project: A simple Soarer Plane

Details:

- WEIGHT WITHOUT BATTERY: 11 oz (311 g)
- CENTER OF GRAVITY: 2.75 inches (70 mm) from leading edge of wing
- CONTROL SURFACE THROWS: 12° deflection (elevator/rudder) Expo 25%
- WINGSPAN: 57.5 inches (1460mm)
- RECOMMENDED MOTOR: 24g, 1300 kv minimum
- RECOMMENDED PROP: 9 x 4.7 prop
- RECOMMENDED ESC: 10 - 18 amp
- RECOMMENDED BATTERY: 500 mAH 3s
- RECOMMENDED SERVOS: (2 - 3) 9 gram servos



Design:

Taken from

<https://s3.amazonaws.com/plans.flitetest.com/stonekap/FT-SS-plans.pdf>

2.Project : A simple 4-channel plane

Channels : Thrust,Elevator,Aileron,Rudder

Dimensions :

Rules-

Horizontal Stab: 20%-25% of the wing area

Elevator: 20%-25% of the horizontal stab chord

Vertical Stab: 7%-12% of the wing area

Rudder: 30%-50% of the vertical stab chord

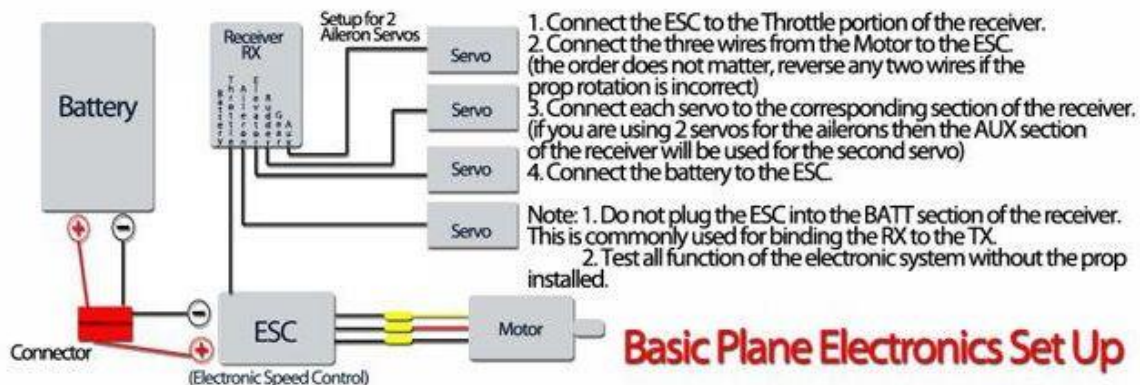
Fuse Length: 70% of wing span

With Fuselage length = 1 meter.

Build & Electronics :

1. Bio-foam
2. Battery and Propeller specifications will be calculated using the website given in point 4 of the NOTE.
3. A BEC-equipped ESC.

Setup for electronics :



Note :

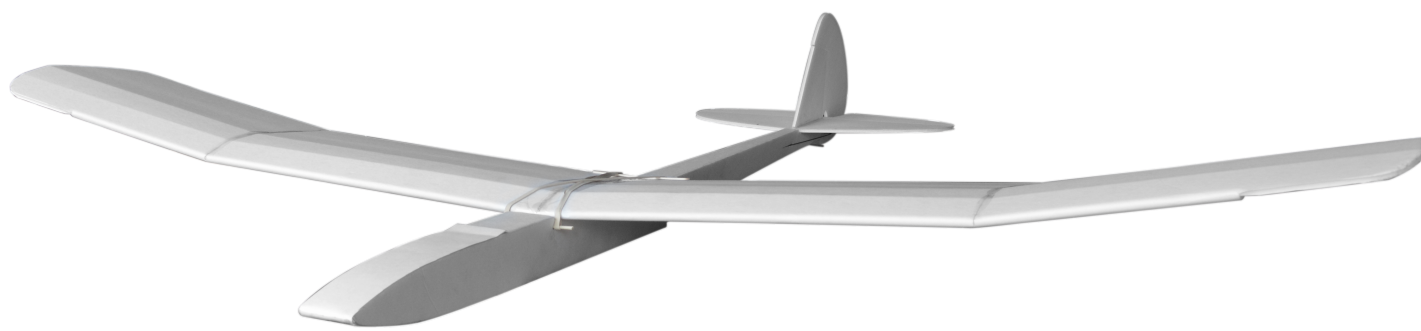
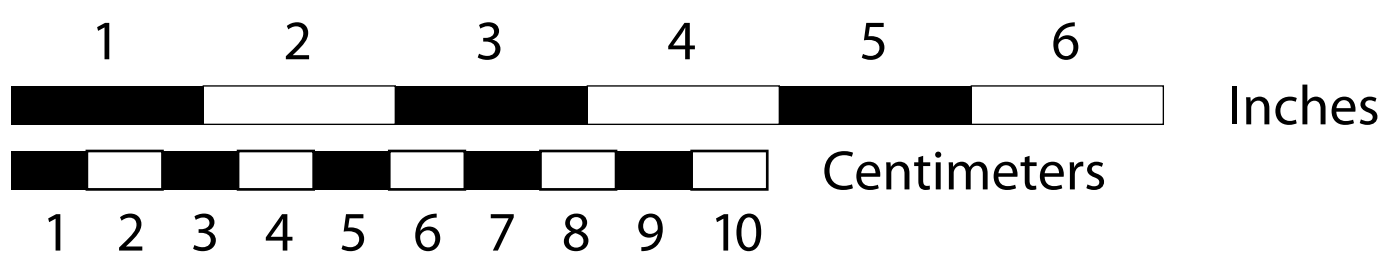
1. **A BEC-equipped ESC** , because a BEC-equipped ESC meant for airplane use often incorporates a low-voltage-cutoff (LVC) circuit which can sense the voltage drop caused when the battery has little charge left in it. It then cuts the power to the 'drive' motor in order to provide the 'steering' servo(s) with enough power to be able to bring the model safely back to the operator. The power to the

propeller would be cut but the operation of the control surfaces would be maintained in order to perform a dead-stick landing. Without this feature, all control would be lost when the battery expired, probably resulting in the destruction of the model.

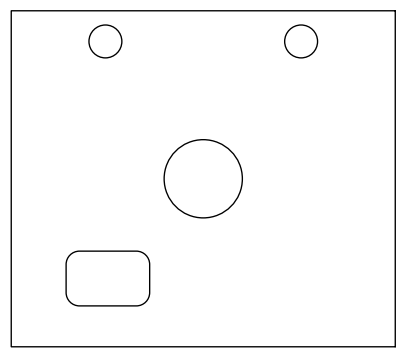
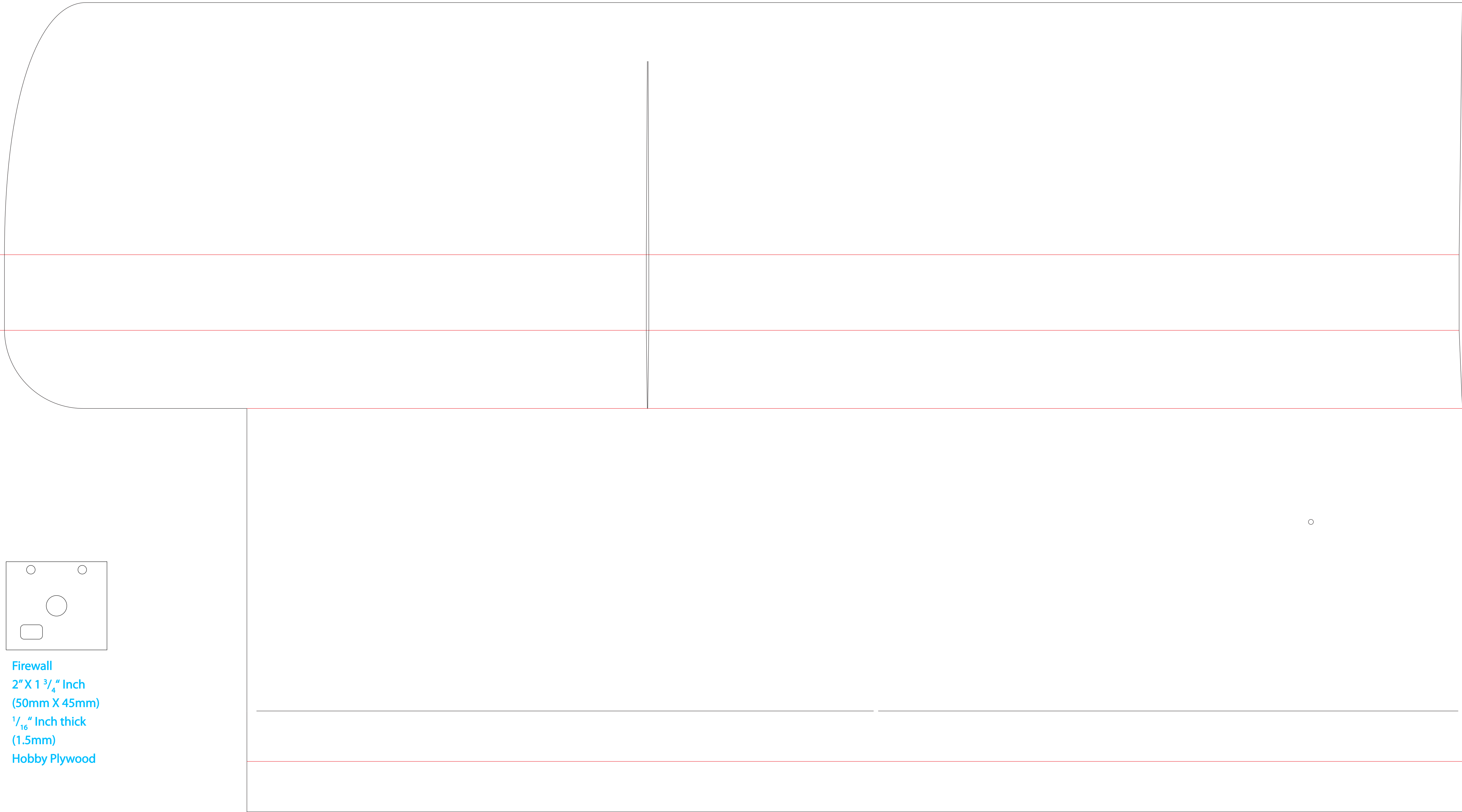
2. I will make a **Trainer plane**.
3. Inspiration from 'https://youtu.be/jv3D30RGT-g'.
4. <http://www.instructables.com/id/Complete-Guide-to-Building-Your-First-DIY-RC-Foamb/> This website have calculators to get the required battery power, propeller size calculations.



FT Simple Soarer

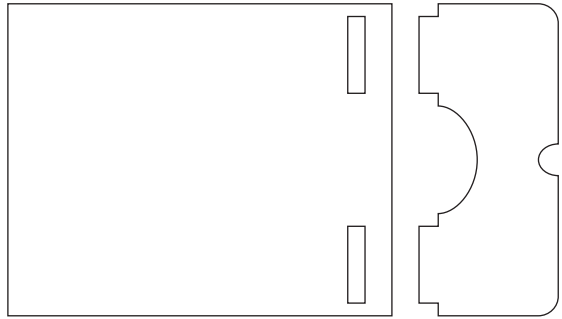


black = cut
red = score 50%
blue = lightly crease

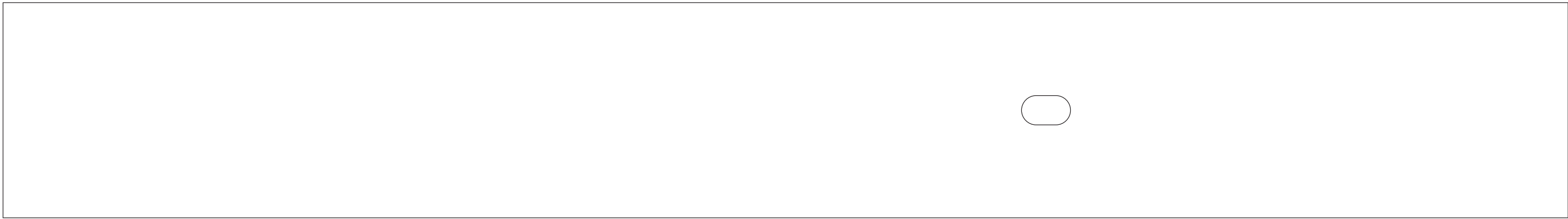


Firewall
2" X 1 3/4" Inch
(50mm X 45mm)
1/16" Inch thick
(1.5mm)
Hobby Plywood

FT Elements Simple Glider Tow Release (3/32" Plywood)



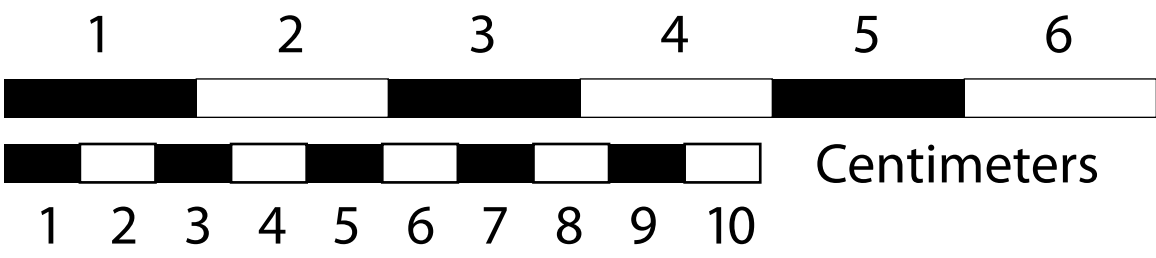
Poster board nose



FT Simple Soarer



www.flitetest.com



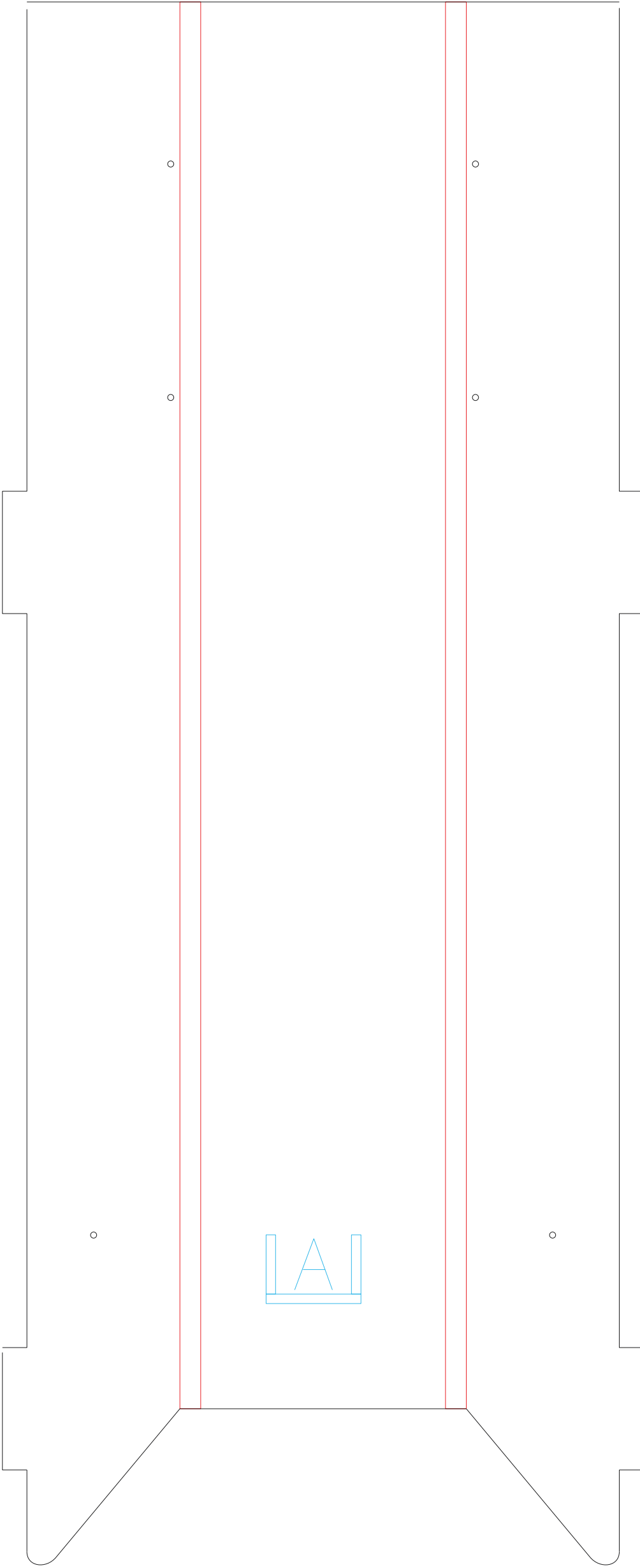
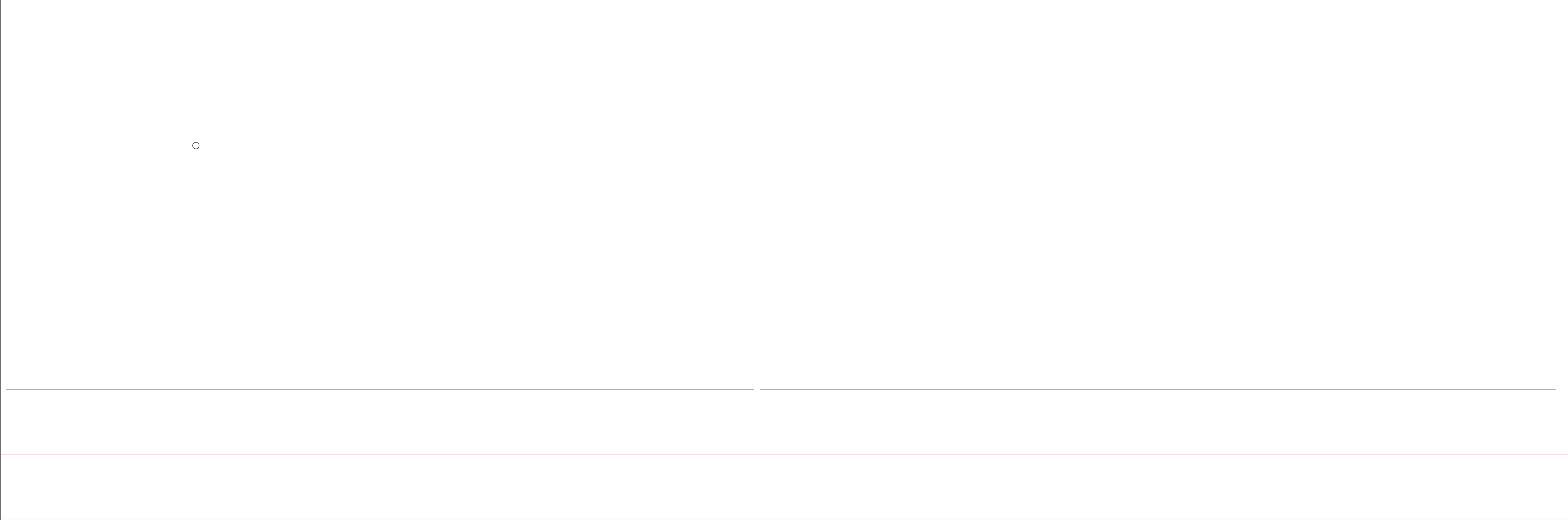
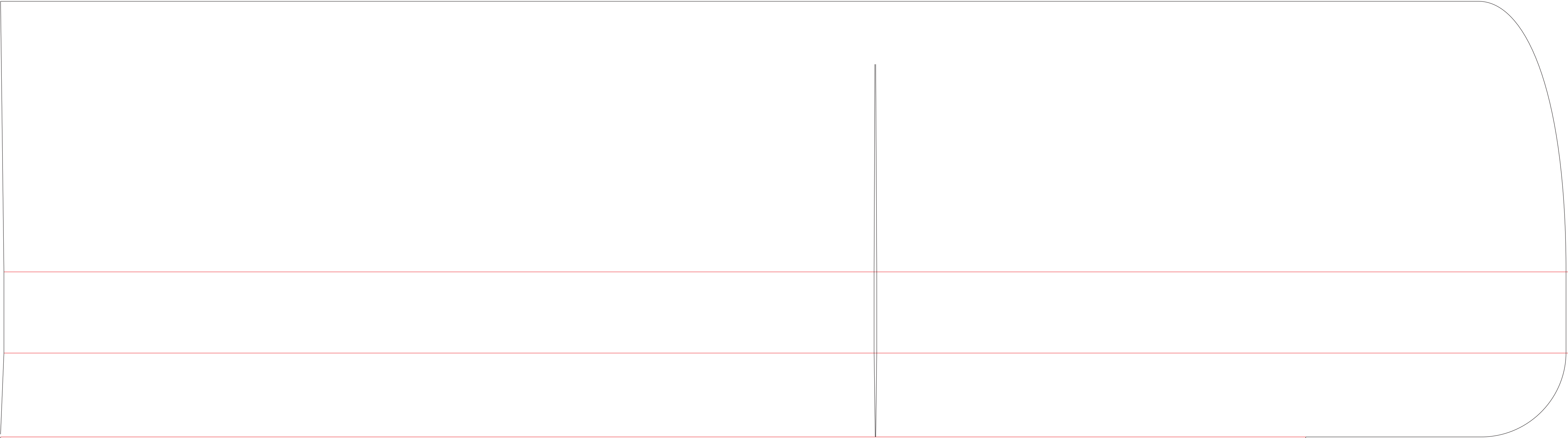
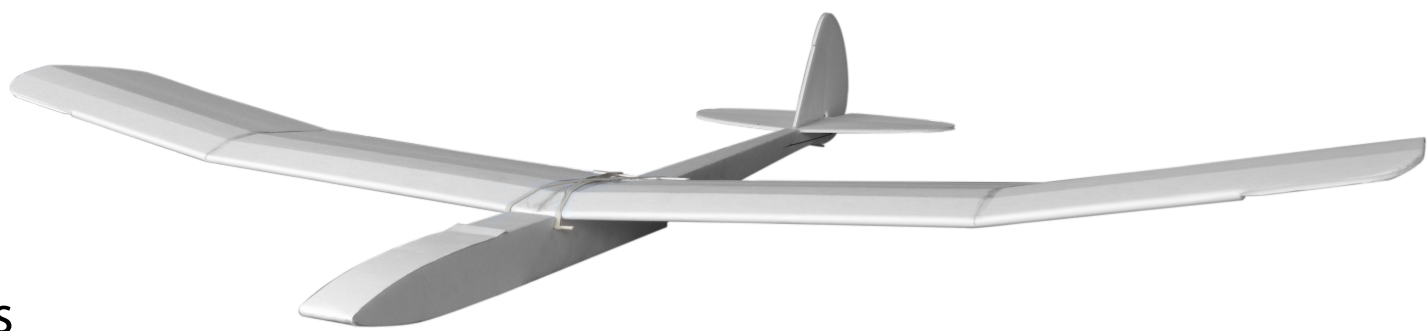
Inches

Centimeters

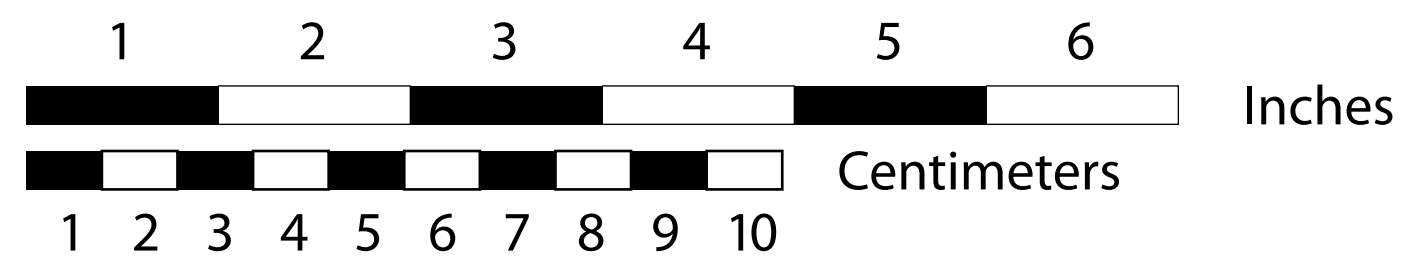
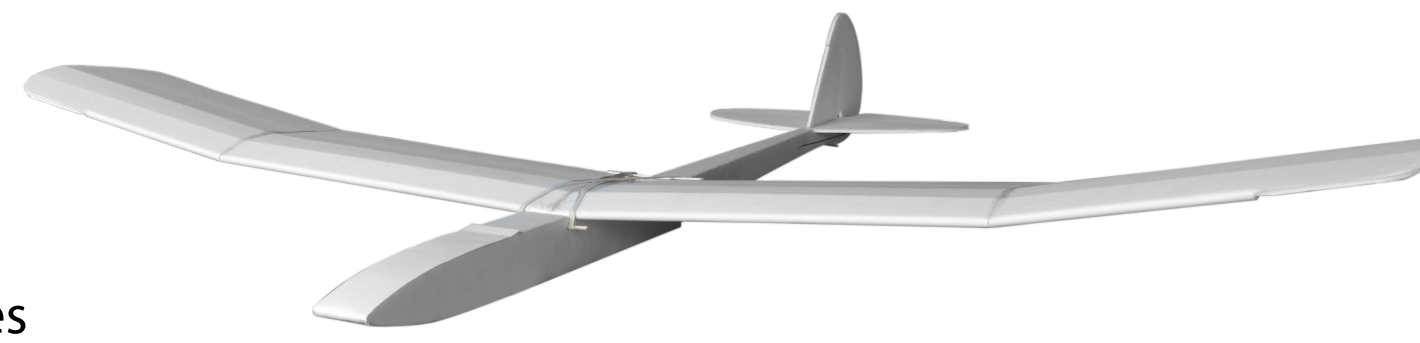
black = cut

red = score 50%

blue = lightly crease



FT Simple Soarer



black = cut

red = score 50%

blue = lightly crease

