

PLANET POLYGON

While exploring the universe, you and your co-pilot Violet enter the atmosphere of the strange planet Polygon. Your ship malfunctions, and to avoid certain death you both eject out of the ship. On landing you are knocked unconscious. When you wake, you look around—where is Violet and why is your spacecraft crumpled?

You find a note on your PCD (Personal Communication Device).

Message #1: 2:15 p.m. Alien code

I couldn't find you when I woke. I've met a group of aliens who seem to call themselves Polygons. They don't have a verbal language but communicate instead with shapes. Through our conversation I think I have managed to decode some of their language.

Shape

Shape	Possible meaning
square	crashed
kite	flying thing
isosceles triangle	volcano
rhombus	large moogal
rectangle	paw
trapezoid	into
polygon	squashed
scalene triangle	hit

- 1 Decode what the aliens said happened to the ship.



Message #2: 3:15 p.m. Alien intelligence test

The Polygons are willing to give us the necessary materials to fix our spaceship, but we both have to pass their test. Good luck, from Violet.

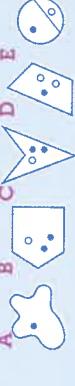
- 2 (a) These are Kwoogals:



These are not Kwoogals:

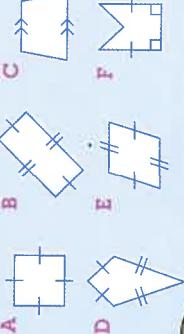


- (b) Which one of these is a Kwoogal?



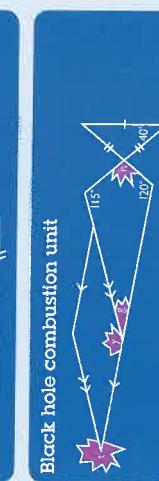
- (c) Write the definition of a Kwoogal.

(More than one answer is okay.)



Message #3: 4:18 p.m. Spaceship blueprints

I've found the blueprints for our spaceship but some of the angles have been burnt in the crash. Can you calculate what the missing angles should be?



What is a moogal?

Use your answers for the spaceship blueprint message to solve the code below.

110° 70° 100° 110° 25° 25° 155°
80° 130° 110° 70° 335°

1 Flying thing into volcano catapulted hit large moogal paw squashed flying thing. (The ship crashed into the volcano. It catapulted out and hit a large moogal, whose paw squashed the ship.)

- 2 (a) (i) C
(ii) A Kwoogal is a quadrilateral containing two black circles and one clear circle.

(b) A, B and E

Fuel cells

$$a = 110^\circ, b = 80^\circ, e = 130^\circ$$

Neutron absorber

$$s = 70^\circ$$

Black hole combustion unit

$$g = 25^\circ, h = 100^\circ, t = 335^\circ, y = 155^\circ$$

What is a moogal?

A SHAGGY BEAST