Junior Engineers for Britain K'Nex Challenge 2005

Level 2 – Area Challenge – Astrofit

Young Engineers and Hasbro are delighted to welcome you to the second stage of this brilliant and fun competition.

The Scenario

Astronauts train all the time to ensure they are very fit and healthy for space travel. Once in space the astronauts need special running machines which will enable them to stay fit and healthy, especially as they tend to float around a lot! Remember there is no gravity so they use very little energy which means they can get big and fat! They need your team to design and make a model space running machine using the K'Nex.

The Challenge

You must build an exercise machine that will allow the astronauts to keep fit and healthy by running. Your machine must be able to let the astronauts run continuously without them or the machine moving through the space craft. Your machine must have one of the two following points:

1. a mechanism that allows the floor to move (like a treadmill) where the astronaut will run on the spot and the floor will spin round

or

2. you can build a machine where the floor stays still and the astronaut runs round (a bit like pushing a roundabout).

You can turn your moving mechanism by hand but you will get extra points if you use gears! You must include a way of stopping the astronaut from floating off the exercise machine. Your model must be between 20 and 30cm tall and 15 to 20cm wide.

Things to Think Of

What K'Nex pieces have you been given? How can you best make use of them in your running machine? You might think about exercise machines you have seen or conveyor belts or even a large wheel that a hamster might use, even a roundabout in a park! How will you make the machine strong and heavy enough to stop it moving about in space? How will you stop it from falling over? How will you build your moving mechanism, will you use gears or some other method? How will you stop the astronauts falling or floating off the machine when running? How will you start and stop it moving? Remember to use your imagination!

Enjoy designing and building your astronauts running machine.

Good luck!

Young Engineers

Hasbro TM Making The World Smile™