Name …… Class ……

Rope bridge 4 The model bridge

Kotyaevka bridge design

The dilapidated rope bridge in Kotyaevka village: villagers demand accelerated restoration.

The rope bridge was built in the era of the Soviet Union and has been used for crossing the Kigash river between Kotyaevka village of Kurmangazy district, Atyrau region, Kazakhstan and Koshelevka village of Krasnoyarsk district, Astrakhan region, Russia.

Sadly, it is now so dilapidated that villagers cannot cross. People on both sides of the river want it repaired immediately both because it will allow them to cross the river safely but also because it has great historical significance. Presidents of both countries, on their first visit, noticed that local people had trouble crossing the river and so approved the building of this bridge. The bridge connects the Astrakhan-Atyrau section of the A-340 highway (between the Koshelevka and Kotyaevka villages), which is part of the E-40 West-East corridor passing through Kazakhstan, the southern regions of Russia and Ukraine and linking Kazakhstan and the countries of Central Asia with the central regions of Russia, the North Caucasus and Western Europe.

Kigash river

Kigash is a river, one of the branches of the lower reaches of the Volga. It flows through the territory of Atyrau region of Kazakhstan and the Astrakhan region of Russia. It flows into the Caspian Sea. The water consumption is 150 cubic meters per second. In the period of high water the river reaches in these places a width of 280 meters, which created a lot of difficulties for crossing.

Starting from Kigash, water is selected for the strategic water pipeline "Volga-Mangystau", to meet the need for fresh water in the waterless Mangystau region of Kazakhstan.

Using the information above and your understanding of forces to design the rope bridge. The villagers have asked that the bridge should cross the canal in one span - do not put any towers in the river because that would cause problems for river traffic.

1. Draw your design on the given paper and prepare the presentation.
2. Present your design to another team - they will need to feedback any ideas to you so that you can improve your plans.
3. Build your model bridge. I've provided some materials for you to do this.

Name …… Class ……

Bridge evaluation

Give each bridge design and model marks out of ten for each of the following criteria.

1: How well does the bridge make use of scientific understanding?
2: How well are these scientific ideas explained?
3: How well is the model constructed?

Team	1	2	3	Total

Rope bridge 4 The model bridge