



Name: _____

Class: _____ Date: _____

Figure It Out

An extension of "Northern sea route opens up"

Read "**Northern sea route opens up**," (page 8, *What's Up* September 2017). The opening up of the Northern sea route poses a threat to the pristine Artic environment. It also affects Singapore's ports. As shipping has always been important to Singapore, let's get familiar with some marine units of measure and test our problem-solving skills.

INSTRUCTIONS

Work in pairs to solve the following problems.

1. A cargo carrier sailed for 19 days to travel a distance of 11,856 km between Europe and Asia, using the Northern Sea route. This journey took 30% less time than taking the Suez Canal Route.

- a. Calculate the ship's average speed in terms of km/h when it took the Northern Sea Route.
- b. Given $1\text{NM} = 1.85\text{ km}$ and $1\text{ knot} = 1\text{ NM/h}$, express the speed calculated in (1a.) in terms of
 - i) NM/h
 - ii) knots

(NM stands for nautical mile which is the unit navigators use to measure distance at sea).

- c. Calculate how many more days the journey will take if the ship were to travel the Suez Canal route rather than the Northern Sea Route. Do you think this saving on journey time was worth disturbing the irreplaceable environment of the pristine Artic Ocean? Explain.

(Round off your answers to 2 decimal places.)

2. By 2024, new sea routes are expected to divert 53 million tonnes of cargo away from Singapore every year. Given $1\text{ tonne} = 1,000\text{ kg}$, express 53 million tonnes in terms of kg.
3. Singapore is planning to build a port equipped to handle 65 million standard containers of cargo a year, by 2040. If the interior dimensions of a standard cargo container are length 12.03 m, width 2.35 m and height 2.39 m find the maximum volume of cargo the port can handle each year.

(Round off your answers to 2 decimal places.)