

The
**SCHOOLING
SOCIETY**

SCIENCE

Relating Science concepts to real life events

Concept: Adaptation

The News Behind The Question

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The Daily News

Houston Wednesday, 30 August 2017

FIRE ANTS PLAGUE



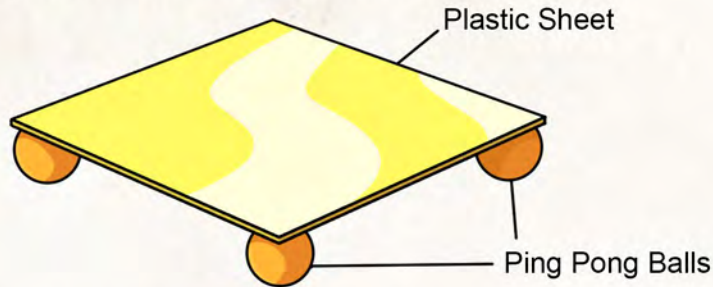
As Hurricane Harvey pounded the region of Houston, residents witnessed a plague of floating fire ants. Hundreds of fire ant rafts were seen floating in areas that have been flooded. When the floodwaters swept through the region, fire ants emerged from beneath the soil. All the ants in each colony would merge to form a loose ball that floats along the water. Residents have been warned to take extra precautions to avoid the stinging bites of these ants.

Name: Teacher: Date: 

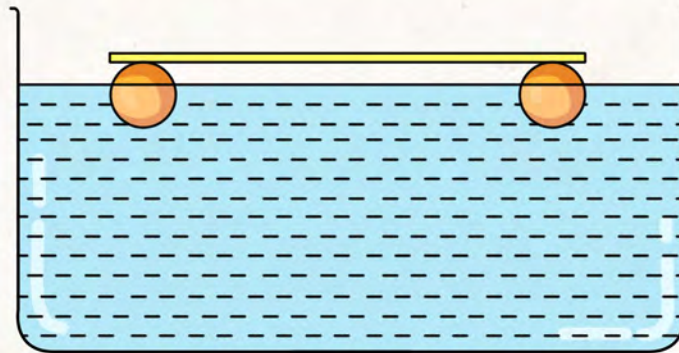
The Question

David read a news report about fire ants during a hurricane.

He carried out an experiment to investigate how the fire ants were able to float. He made a floating platform by gluing four ping pong balls to a square piece of plastic sheet.



He wanted to find out how much load the floating platform could support before sinking. He placed the platform on a basin of water and added 50g weights until the platform sank.



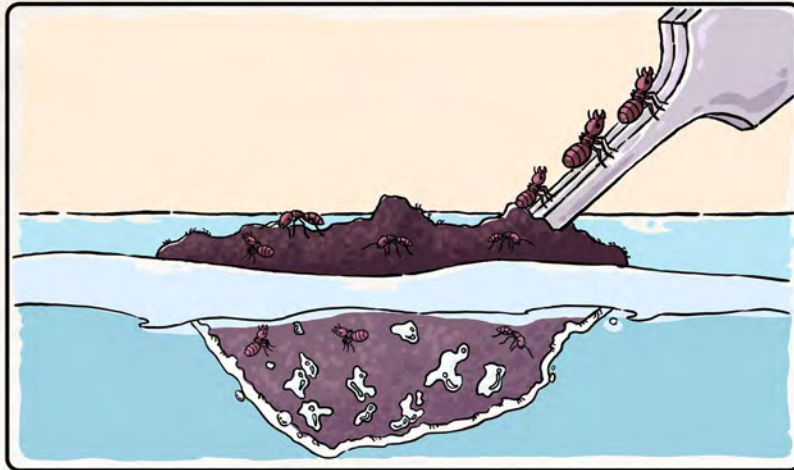
He repeated the experiment by attaching more ping pong balls to the platform. His results are shown below.

Number of ping pong balls	Maximum load before sinking (g)
4	300
6	450
8	600
10	750
12	900

- a) What can David conclude about the relationship between the number of ping pong balls and the maximum load that the platform could support?

As the number of ping pong balls increased, the maximum load that the platform could support also increased.

The diagram below shows a raft of fire ants. Air bubbles are trapped between the fire ants.



- b) Based on Question (a), explain how this enables the ants to float.

The air bubbles can support the weight of the ants and enable the raft to float.

- c) During the recent floods in Texas, thousands of fire ants linked together to form a 'raft' that floated on water, as shown in the diagram below. Explain how these floating groups of fire ants have a better chance of surviving the flood than a single ant.



When many ants link up together, this creates more air bubbles. The increased number

of bubbles allows the ants to float for a longer period of time compared to a single ant.

- d) The larvae of these ants are usually found at the bottom of the 'raft' as they are more buoyant. Explain why this may not be advantageous for their survival.

When the larvae are at the bottom of the raft, they can be easily eaten by predators

in the water. This could reduce the population of the colony.