Environmental Science Annotation System

Underline main idea (MI)

? Questions or clarifying ideas

Box unknown vocab words

T/C Text to class connection with summary in margin.

**Reading Purpose: What makes the brown rat an effective invasive species?**

Invasive Species

Directions: Read the following passage about the brown rat, an invasive species. Then answer the questions below in COMPLETE SENTENCES.

**Brown rat biology**

Considered one of the most serious mammalian pests ever known, the brown rat is a true omnivore, eating a huge range of food including [invertebrates](http://www.arkive.org/brown-rat/rattus-norvegicus/#glossary), frogs, small mammals, birds' eggs, scavenged meat and bones, cereals and seeds [(4)](http://www.arkive.org/brown-rat/rattus-norvegicus/#ref4), fruit, [carrion](http://www.arkive.org/brown-rat/rattus-norvegicus/#glossary), and any food discarded by humans [(1)](http://www.arkive.org/brown-rat/rattus-norvegicus/#ref1). They have also been known to catch and eat fish [(2)](http://www.arkive.org/brown-rat/rattus-norvegicus/#ref2). They are mainly [nocturnal](http://www.arkive.org/brown-rat/rattus-norvegicus/#glossary), but like many mammals they become increasingly active in the day where they are undisturbed by humans [(4)](http://www.arkive.org/brown-rat/rattus-norvegicus/#ref4). They generally move around on the ground, but are also expert jumpers, climbers and swimmers [(1)](http://www.arkive.org/brown-rat/rattus-norvegicus/#ref1), holding their tail aloft for balance when swimming [(2)](http://www.arkive.org/brown-rat/rattus-norvegicus/#ref2). Brown rats live in 'packs' in which there is a dominant male who gains priority access to food, water and resting sites, and defends a harem of females, preventing subordinate males from mating [(1)](http://www.arkive.org/brown-rat/rattus-norvegicus/#ref1).

This rat is one of the most prolific of all mammals [(1)](http://www.arkive.org/brown-rat/rattus-norvegicus/#ref1). Females become sexually mature at just 8 to 12 weeks, [gestation](http://www.arkive.org/brown-rat/rattus-norvegicus/#glossary) is between 21 and 23 days, and females are able to conceive whilst suckling a previous litter, often mating within 18 hours of giving birth [(1)](http://www.arkive.org/brown-rat/rattus-norvegicus/#ref1). They can breed throughout the year if the weather is mild and there is plenty of food; 13 litters are possible each year, each one consisting of seven to nine young [(4)](http://www.arkive.org/brown-rat/rattus-norvegicus/#ref4).

Maximum-known longevity is three years, but in the wild, life span is probably less than 18 months [(4)](http://www.arkive.org/brown-rat/rattus-norvegicus/#ref4). The greatest cause of mortality is poisoning by rodenticides, but predators such as cats, foxes, dogs, mink, stoats and owls also take their toll [(4)](http://www.arkive.org/brown-rat/rattus-norvegicus/#ref4).

**Brown rat range**

The brown rat is believed to have originated from China. It reached Europe at some point in the early 18th century and was first seen in England in 1720 [(4)](http://www.arkive.org/brown-rat/rattus-norvegicus/#ref4). At present it has a very wide distribution in Britain in both urban and rural areas, but is absent from a number of smaller islands. It is widespread and common in urban areas across the globe, with the exception of some tropical and subtropical areas [(4)](http://www.arkive.org/brown-rat/rattus-norvegicus/#ref4).

Directions: The following are a list of characteristics that make a rat a good invader. For each characteristic, use evidence from the article to explain why the rat has that characteristic.

Characteristic: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Evidence:

Characteristic: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Evidence:

Characteristic: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Evidence: