

4/25/12

Limiting factors

#7

Quietly read p. 3-4 How do Milkweed Bugs Grow?



What is the length of life cycle of the Milkweed Bug from egg to egg?



**Learning**

**target:** I can identify biotic and abiotic factors that limit population growth and demonstrate my understanding with an example from the Frog pond

4/25/12

Limiting factors

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Every population has the potential to increase in size. You can calculate the potential for population growth for any organism

**Reproductive potential:**  
The theoretical unlimited growth of a population over time.



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**What information would we need to predict the size of the milkweed bug population?**



**Learning**

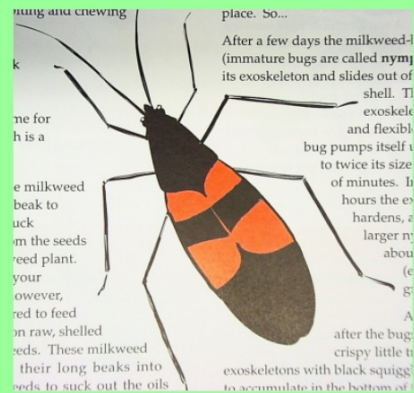
**target:** I can identify biotic and abiotic factors that limit population growth and demonstrate my understanding with an example from the Frog pond

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Predict the milkweed bug reproductive potential. (after a year)



Question	Answer
How long do milkweed bugs live?	4 months
How old is a female when she mates?	2 months
How many eggs does a typical female lay in a lifetime?	100
What is the ratio of males to females?	50/50



**Learning**

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## Milkweed bug reproductive potential

# 31,875,000,000

- Circle the earth 8 times in a line nose to tail
- Cover 8 football fields
- Mass of 30,000 middle schoolers
- Fill 12 middle school classrooms floor to ceiling!



### Learning

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Population reduction	Parents (male and female)	Offspring (male and female)	Total population	Total elapsed time
	1 ♂ 1 ♀	50 ♂ 50 ♀	102	2 mo.
2	50 ♂ 50 ♀	2500 ♂ 2500 ♀	5100	4 mo.
100	2500 ♂ 2500 ♀	125,000 ♂ 125,000 ♀	255,000	6 mo.
5000	125,000 ♂ 125,000 ♀	6,250,000 ♂ 6,250,000 ♀	12,750,000	8 mo.
250,000	6,250,000 ♂ 6,250,000 ♀	312,500,000 ♂ 312,500,000 ♀	637,500,000	10 mo.
12,500,000	312,500,000 ♂ 312,500,000 ♀	15,625,000,000 ♂ 15,625,000,000 ♀	31,875,000,000	12 mo.

UNLIMITED MILKWEED-BUG POPULATION

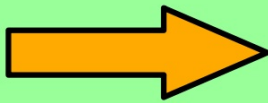


Learning target:

I can identify biotic and abiotic factors that limit population growth and demonstrate my understanding with an example from the Frog pond

Clearly this does not occur?

Why not?



**Learning**

**target:** I can identify biotic and abiotic factors that limit population growth and demonstrate my understanding with an example from the Frog pond

**Limiting factors: What are some of the possible factors that might limit the growth of a population?**

per. 1

Biotic	Abiotic
predators disease food food supply	cars warfare weather weapons



#### Learning

**target:** I can identify biotic and abiotic factors that limit population growth and demonstrate my understanding with an example from the Frog pond



Limiting factors: What are some of the possible factors that might limit the growth of a population?

per. 4

Biotic	Abiotic
Misgarage Predators diseases Raptors Dinosaurs ninjas Bears Bears Potatoes	Cars warfare whether abortion rocks 2012 famine natural factors Natural causes overpopulation Falcon Punch



Learning target:

I can identify biotic and abiotic factors that limit population growth and demonstrate my understanding with an example from the Frog pond

**Limiting factors: What are some of the possible factors that might limit the growth of a population?**

per. 2

Biotic	Abiotic
<p>predators            lack of food            humans            disease/virus</p>	<p>weather            natural disaster            disruption of habitat            vehicles            amt of space            warfare            accidents</p>



**Learning**

**target:** I can identify biotic and abiotic factors that limit population growth and demonstrate my understanding with an example from the Frog pond

Limiting factors: What are some of the possible factors that might limit the growth of a population?

Per. 3

Biotic	Abiotic
<p>poison</p> <p>disease</p> <p>people</p> <p>predators</p> <p>Lack of food and water</p>	<p>migration</p> <p>Warfare</p> <p>wind</p> <p>temperature</p> <p>natural disasters and unnatural</p> <p>Ice</p> <p>disruption of atmosphere</p> <p>Avalanches</p> <p>accidents</p>



Learning

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*last year there were  
200 or more  
tadpoles.*

*Why are there only 4  
frogs in the pond  
today?*



**Life cycle:  
female lays eggs fall-spring**

**Female lays clumps of 10-90  
eggs**

**Tadpoles hatch 2 weeks later**

**Metamorphosis occurs 2-3  
months later**

**Young frogs breed that winter-  
spring.**



**Learning**

**target:** I can identify biotic and abiotic factors that limit population growth and demonstrate my understanding with an example from the Frog pond

*Limiting Factors of Frog Population?*

***BIOTIC***

***ABIOTIC***

<b><i>BIOTIC</i></b>	<b><i>ABIOTIC</i></b>

***Limiting Factor:***

***Anything that exerts pressure on a population to constrain it.***

***Limiting Factors of Polar Bear Population (in video)***

***Abiotic***

***Biotic***

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