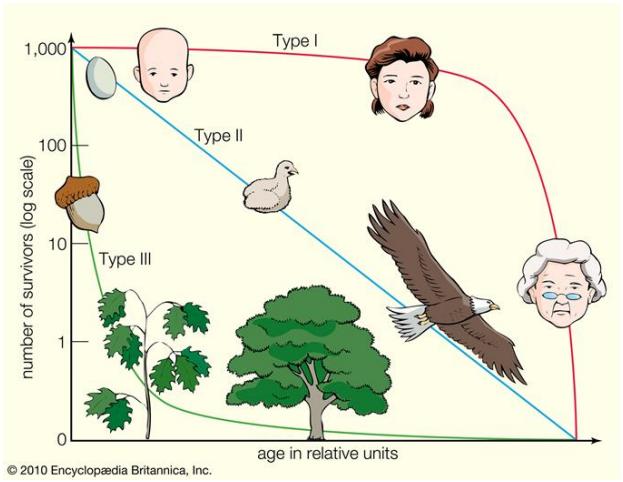
Name:_____

Lab: Survivorship MAKEUP ASSIGNMENT

Remember: As per GHHS Policy, you have two days for each day absent to makeup assignments.

Background: Within a population, some individuals die very young while others live into old age. To a large extent, the pattern of survivorship is species dependent. Three general patterns of survivorship have been identified. These three have been summarized by survivorship curves, which are graphs that indicate the pattern of mortality (death) in a population. A Type I curve shows high survivorship until old age, then high mortality. A Type II curve shows near-constant, moderate survivorship of all different ages of a population. Type III curves show low survivorship at the younger ages, with survivorship increasing as the population ages.



What We Did in Class:

Students simulated the three major survivorship curves by recording the lifespans of bubbles. Population one represented "sink or swim babies" for which no parental care was given. Population two represented "bottleneck babies" for which bubbles had to reach a certain maturity before surviving. Population three represented "nurtured babies" for which parental care was given and students kept the bubbles from bursting for as long as possible. This was a really fun lab and you should be sad that you missed it.

Analysis:

a. Use the data below to analyze each population. Start by subtracting the number dying at each age cumulatively from 25 and record the number in the column "Total Number Surviving to This Age"

b. Calculate the percentage surviving at each age by dividing the number surviving by 25 and multiplying by 100.

c. Plot the percentage surviving for each population on logarithmic graph paper as a triple line graph. The x-axis is age (in seconds) and the y-axis is percent surviving (in %). Be sure to include a key for the three lines.

Analysis Questions:

1. How was the shape of the curves influenced by the conditions of each population?

2. Identify each curve as Type I, Type II or Type III.

3. Identify each population as r-selected or K-selected.

4. Do any of the soap bubble populations show a constant death rate for at least part of their lifespan? Is so, which?

5. Bubble population 1, the sink-or-swim population, was provided no parental care. Give three examples of species that use this strategy.

6. Bubble population 2, the bottleneck population, was forced to travel through the frame to survive. In nature, what situations would create a type of population bottleneck?

7. Give three examples of species that use the strategy simulated by bubble population 2.

8. Bubble population 3, the nurtured population, was provided parental care. Give three examples of species that use this strategy.

9. Why is semi logarithmic graph paper used in lieu of standard graph paper?

10. Identify two possible sources of error in this lab.

11. What have you learned from this makeup lab?

Data Table 1: Sink or Swim

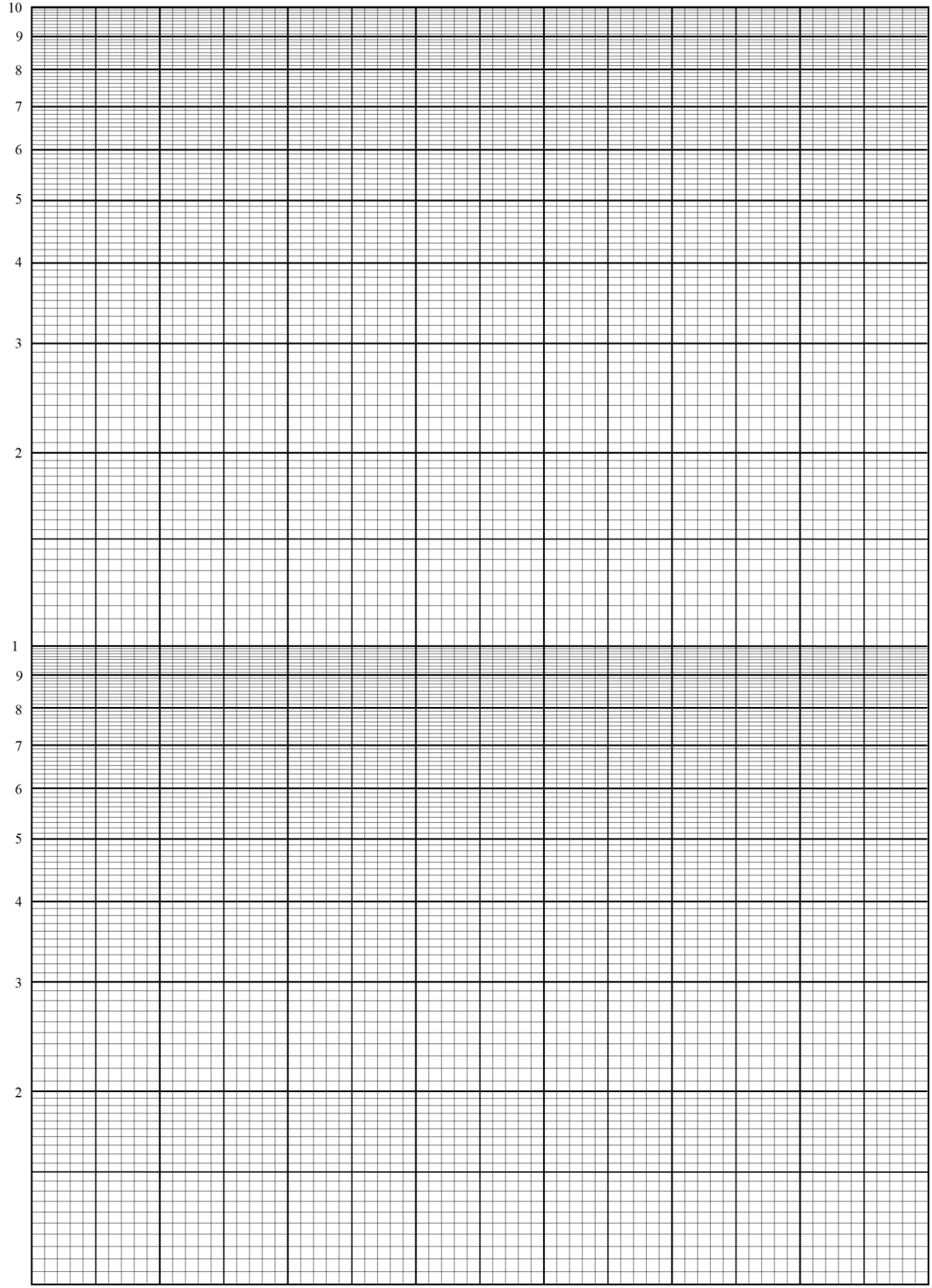
AGE AT DEATH	TOTAL # DYING AT THIS AGE	TOTAL # SURVIVING TO THIS AGE	% SURVIVING
0	0		
1	7		
2	7		
3	4		
4	0		
5	1		
6	2		
7	1		
8	0		
9	0		
10	1		
11	0		
12	1		
13	0		
14	0		
15	0		
16	0		
17	0		
18	0		
19	0		
20	0		
21	0		
22	0		
23	0		
24	0		
25	0		
26	0		
27	0		
28	0		
29	0		
30	0		
31	1		
32			
33			
34			
35			

Data Table 2: Bottleneck

AGE AT DEATH	TOTAL # DYING AT THIS AGE	TOTAL # SURVIVING TO THIS AGE	% SURVIVING
0	0		
1	0		
2	1		
3	0		
4	1		
5	0		
6	1		
7	2		
8	3		
9	1		
10	2		
11	4		
12	3		
13	0		
14	2		
15	1		
16	0		
17	0		
18	1		
19	0		
20	0		
21	0		
22	1		
23	0		
24	0		
25	1		
26	0		
27	0		
28	0		
29	0		
30	0		
31	0		
32	1		
33			
34			
35			

Data Table 3: Nurtured

AGE AT DEATH	TOTAL # DYING AT THIS AGE	TOTAL # SURVIVING TO THIS AGE	% SURVIVING
0	0		
1	0		
2	0		
3	0		
4	0		
5	0		
6	1		
7	0		
8	0		
9	1		
10	0		
11	0		
12	0		
13	1		
14	4		
15	0		
16	0		
17	2		
18	0		
19	1		
20	2		
21	1		
22	1		
23	2		
24	0		
25	2		
26	1		
27	0		
28	3		
29	1		
30	0		
31	1		
32	0		
33	0		
34	1		
35			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