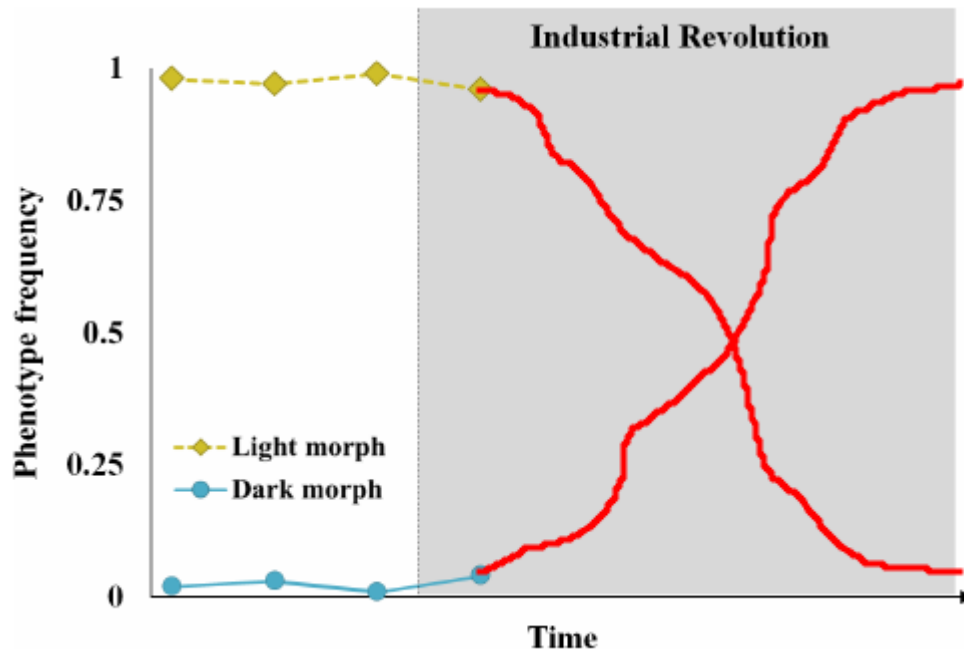


1 - Peppered Moth

Part 1

1. If the Industrial Revolution led to changes in the moth population through a change in the environment, then the phenotypic ratios of the moth population would change to fit the environment and bow to selective pressures



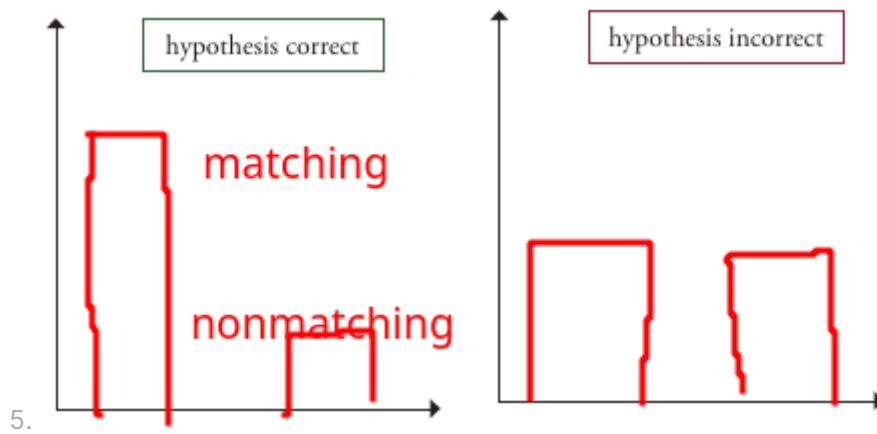
2.

Part 2

1. Table 1

Environment	Phenotype	Predicted number recaptured
unpolluted / light bark	light	80
unpolluted / light bark	dark	10
polluted / dark bark	light	20
polluted / dark bark	dark	70

2. Predation from other species, like animals that do not rely on sight for food and instead use things like sound, temperature, or echolocation.
3. Force them to perch on a certain tree trunk by releasing them in an area the only has those trees for a long distance and is isolated from trees of other types.
4. The exact same experiment will be conducted, but in a more remote testing area



Part 3

1. Non-matching moth and tree bark would attract more attention from birds
2. Non-matching moth and tree bark would attract more attention from humans
3. No, because the way birds see and experience vision is very different from humans, and they also are not at a standstill and looking for moths whom are told exist
4. Its non-independent since the same birds are used across different times, and may have a memory of the previous trials
5. Place fake light and dark moths on both light and dark trees, with cameras recording them. Count the number of times birds visit or look at each fake sample and compare the occurences.

Part 4

1. Table 2

Year	Light morphs released	Light morphs eaten	w_{light}	s_{light}	Dark morphs released	Dark morphs eaten	w_{dark}	s_{dark}
2002	706	162	1	0	101	32	0.90	0.10
2003	731	204	1	0	82	24	0.99	0.01
2004	751	128	1	0	53	17	0.82	0.18
2005	763	166	1	0	58	18	0.88	0.12

2. $500 * (1 - 0.18) = 410$
3. Yes, it should have some evidence that light moths are being selected for after seeing the data.

Part 5

1. Birds with shorter wings probably can move faster, and avoid cars coming at them, leading them to have a selective advantage, which can be seen in the population at large
2. Watch birds with cameras to see if there is car avoidance from short winged birds.