Scientific Method – Notes Guide

Name: __________________________

Saving the Kakapo

• What is a kakapo? ________________________________________________________________

• The **Kakapo**, *Strigops habroptila* is a species of large, ____________________________ parrot endemic to New Zealand

• It is the world’s heaviest parrot, weighing up to _______ pounds.

How are researchers trying to save them?

• Incubating eggs and __________________________________________________________
  – Almost __________ of the population consists of handraised birds
  – Thanks to the __________________________ intervention, more kakapos have been returned to the wild

• Regular Health Checks
  – Birds are checked annually by being __________, blood samples taken, and checked for __________

• Supplementary feeding
  – A special diet is put out in __________________________ so the parrots always have a food source

Something interesting happened...

• Scientists were collecting data to see how many chicks were hatched after the feeders were put out.

• They were happy to find that more ____________________ hatched thanks to the feeders.

• They also realized that there were more ______________ chicks hatched from females who ate from the feeders.

• What could have caused this?

Basic Scientific Method

• Ask the Question: what are you trying to _________________________________?

• Hypothesis: Make an ______________________ guess about what you think might happen; no wrong answers!

• Experiment: Always do many experiments to test your _______________________________

• Collect Data: Collect your _______________________________ and organize them for better understanding

• Analyze results: What did the __________________________ tell you?

• Conclusion: State the outcome of your ______________________ and how it affects your _________________.

• Share your Findings: sharing with others who might have the same questions expands understanding of biology
Let’s see how this method is applied to the kakapo recovery program...

**Ask the Question**

What do we know about the kakapo? What do they need to produce healthy chicks?

- It costs more __________________ to produce a big male than a female.
- If resources are ______________________, a son can be produced.
- They picked a ______________________ variable to observe: diet.
- Variable: the thing you test that differs from the ______________ group which is unchanged.

**Our question:** ___________________________?

**Hypothesis**

- Hypothesis: an educated guess based on prior __________________________
- Write **ONLY ONE** of the hypotheses:
  - ____________________________
- Does it matter if your hypothesis is proven false? __________________________

**Experiment**

**Procedure:**

1) **Weigh all ______________________ birds**
2) **For hens over ________ kg (______ lbs), cut the supplemental diet (experimental group)**
3) **For hens under ________ kg (______ lbs), continue the supplemental diet (control group)**
4) **After the breeding season, count the number of ___________ and ___________ chicks in each group**
5) **Calculate the percentage of ___________ chicks for each group**
6) **Collect and compare data to ______________ group**

**Materials & Methods**

- Weigh scale and feeder
  - Birds must get on the ________________ to eat from the feeder
- High quality feed
  - High in _____________________ and _______________ for hens to bulk up for breeding season
Collect data

- What percentage of male chicks were produced by hens on the supplemental diet? ______________________
- What percentage of male chicks were produced by hens on the reduced diet? ______________________

Analyze Results

- What do the results tell us? ________________________________________________________________
- How do we know this is what the results mean? ______________________________________________

What were the strengths of this experiment?

1) ______________________________________________________________________________________
2) ______________________________________________________________________________________

What were the weaknesses of this experiment?

1) ______________________________________________________________________________________
2) ______________________________________________________________________________________

Conclusion

- Write a 3-5 sentence conclusion, including the following:
  - A summary of the experiment,
  - Restate your hypothesis,
  - Explain why the data proved your hypothesis true or false, and
  - What would you do different to make the experiment more effective.

Write your conclusion here:

_____________________________________________________________________________________

_____________________________________________________________________________________

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