The Rock Detective Program

The Rock Detective Program is a non-profit organization that creates geoscience teaching kits for grades K-12 (Fig. 1). Each of the mysteries has real specimens that can be handled and observed allowing children to learn geoscience through hands on skills and active learning. The mysteries are used to assist teachers in teaching science in a fun and creative environment.

My Project:

- I am creating two mysteries for the Rock Detective Program: 1-3rd grade & middle school.
  - Each kit has a binder with multiple mysteries. Each mystery has 3.4 questions that lead up to answering what the specimen is, has a teachers guide and answer sheet, and specimens.
- My mysteries focus on Emydid Turtles from Pleistocene period and include specimens from *Trachemys scripta* and *Pseudemys* species (Fig. 2).
- In order to construct the mysteries, I researched literature about the Emydid turtles and contacted experts in the field of turtle paleontology.
- I have tested the mysteries with a group of Boy Scouts.
- The final versions of the mysteries will permanently be added to the Rock Detective Program's library.

Acknowledgements

I would like to thank my mentors Dr. K Sian Davies-Vollum (UW-Tacoma) and Ruth Deike (Rock Detective Program) for all of their help and effort in helping me find my way through research and exploring what it means to be a Rock Detective. My last thank you goes to my husband Mike and our kids who have endured me asking them all of my questions and getting their feedback. Also, to the Boy Scout Troop 381 for your comments. For any questions or information about the Kids Rock Detective Program, please visit www.rockdetective.org.

References


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**Emydid Turtle: Fast Facts**

- **Emydids:**
  - Are common all over the southwest United States and native to North America.
  - Are a freshwater group of turtles.
  - Lifespan: 20-40 years depending on species and sex (Troutt et al. 2007).
  - Have 25 genera and 85 living species (Emydidae 2012).
  - Have common Names: Sliders and Cooters (Troutt 2011).
  - Back in the sun to raise body temperature (Barnick et al. 1999) (Peterman et al. 2009) (Fig. 3 & Fig. 4).
  - Optimum basking temperatures range from 36-30°C, depending on species (Barnick et al. 1999).
  - Turtle shell growth is limited to temperatures between 20°C-25°C.
  - Turtle ages are extremely hard to tell because pieces of shell fall off during growth.
  - Hibernate during winter months in mole holes, empty tree stumps, and mud (Troutt et al. 2009).
  - Some *Pseudemys* species hibernate on the bottom of the water body they are in (Lovich et al. 2009).
  - *Pseudemys* species typically can be found in large rivers or streams and prefer those with moderate to fast currents (Lovich et al. 2009).

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**Turtle Mystery**

**Below is my mystery in the making!**

**ROCK DETECTIVE PROGRAM (GRADES 1-3)

#243 I have the perfect hiding spot in my shell! I am usually green, but can be found in a variety of colors.**

**Guess: **I mainly live on land, but do enjoy a little swim in the water when I need to cool down. My back is a hard, bony surface, and I like to hide in my shell from other critters trying to play (eat) on me.

**Q: **If you had all of the pieces to my shell, you could see the shape of my back. What animal has a back the shape of a circle/oval with many pieces?

**A: **Turtles!

**Q: **My back is used to protect me from predators and keep my body temperature consistent. What do humans do to tan or enjoy the sun's heat?

**A: **Bask in the sun! Lay down in the sun.

**Q: **Now that you know I need the sun's heat to keep me warm, you can also guess what type of climate I need to be in?

**A: **Warm

**HINT: TURTLES AT THE PET SHOP USUALLY HAVE WHAT TYPE OF LIGHTS IN THEIR TANK?**

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**Fig. 1. Rock Detective Program Kit displayed to show contents. Each kit has a Rock Detective binder that has the mysteries within. A teacher's guide, answer sheet, and specimens are also part of kit's contents.**

http://www.rockdetective.org/kit_in_bucket.html

**Fig. 2. Trachemys scripta and Pseudemys geo turtles fossils. www.rockdetective.org**

**Fig. 3. My back is used to protect me from predators and keep my body temperature consistent. What do humans do to tan or enjoy the sun’s heat?**

**References**


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**Fig. 4. Photo: Trachemys scripta and Pseudemys geo turtles fossils. www.rockdetective.org**

**Fig. 5. Trachemys scripta and Pseudemys geo turtles fossils. www.rockdetective.org**

**Fig. 6. Photo: Trachemys scripta and Pseudemys geo turtles fossils. www.rockdetective.org**

**Fig. 7. Rock detective Program Kit displayed to show contents. Each kit has a Rock detective binder that has the mysteries within. A teacher's guide, answer sheet, and specimens are also part of kit's contents.**

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**References**