

SciGirls Activity 10

Hip-Hop Frogs!



Icebreaker:
Learn about liquids when
you do the Penny Drop!



You'll need:

- a penny, and other coins
- an eyedropper
- water, or other liquids

SciGirls Skill: Observing

Guide your girls as they:

- 1) Set a dry penny on a table or counter top.
- 2) Use the eyedropper to slowly place one drop of water at a time onto the penny. Keep count of how many drops you add.
- 3) Keep adding drops until the water spills over the edge of the penny.
- 4) What's the greatest number of drops you can add without spilling? What happens if you try milk, or vegetable oil, instead of water? What property of water allows it to pile up this way?



SciGirls Suggestion: Groups of girls can share eyedroppers, but should have their own pennies to really have a clear view of the activity. At most, have girls team up in partners, and as always, remind them to record their



Need to know more about this coppery caper? Go to http://pbskids.org/dragonflytv/superdoit/penny_drop.html

Investigation: Malformed Frogs

Jump into a backyard biology inquiry.

We're Susie and Katie, and we love frogs. When we were growing up, we tried to catch frogs behind our house. Recently we noticed a lot of the frogs in our pond had funny looking legs. Our SciGirls question: **What's causing the malformations at our frog pond?**



For each group of three girls, you'll need:

- hip waders and life jackets
- butterfly-style nets
- 5-gallon buckets with lids
- camera
- access to a pond that has frogs in it, during the time of year after tadpoles have morphed into frogs



What did you find? For more information on this activity, hop to pbskids.org/dragonflytv/show/malformedfrogs.html. Then surf to pbskids.org/dragonflytv/contact/index.html to tell us about your investigation!



Check out this investigation on
Tape 2, Segment 10.



SciGirls Want to Know: Does my pond have a high rate of frog malformations, and what might be causing them?

Guide your girls as they:

- 1) Identify location where frogs are found.
- 2) Wade into the ponds wearing hip waders and a life jacket. Collect as many frogs as possible, using nets. Keep the frogs in buckets of water for sorting and counting later.
- 3) After frogs are collected, count the number of malformed frogs, and the number of normal frogs. Note whether the malformations are symmetrical (occur on both sides of the body) or asymmetrical (occur on one side only). Take pictures of the malformed frogs, then release all the frogs back to their pond.



SciGirls Secret:

Phenomena like a malformed frog infestation are often researched by area universities or colleges. Work with your girls to identify a local science issue that is currently under observation by an academic or state government organization. Invite a researcher on their chosen topic to talk with your girls about the process, funding, and challenges behind such inquiry projects.





SciGirls Synthesize: Data and Analysis

Here are the DFTV girls' results. You can use a table like this to show your own data.

Total Frogs Caught	45
Number of Malformed Frogs	15 (33%)
Number of Normal Frogs	30 (67%)
Number of Asymmetrical Malformations	14 out of 15
Number of Symmetrical Malformations	1 out of 15

See Appendix A for a graphing example.

Conclusion:

Susie and Katie found that the malformation rate in this pond was well above baseline limits of 5-10%. The majority of malformations were asymmetrical, indicating that the cause of malformations was likely caused by parasites, not chemicals. It wasn't clear why there was a parasite problem this year and apparently not in past years.

Keep Exploring!

Ask for your teacher's or club leader's help in setting up an aquarium for tadpoles. Observe the tadpoles carefully each day, and write down the changes you see. How many days does it take for the legs to appear, and the tail to disappear?