



CONSTELLATION CLUES

The Cipher of the Seven Stars

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Companion Activities

Teachers and librarians, *Constellation Clues* is filled with connections to STEAM learning objectives. See below for a compilation of educational activities organized by subject and age group. Use this symbol key to find the type of activity you need:

Science topics: stars telescopes/dark skies light engineering

icons for various animals


















Additional subjects: cultures art math

Type of activity: handout/article hands-on activity video (run time in parentheses)

The Pleiades, Star Clusters, Constellations, and Nebulae		
<i>The Pleiades are a star character throughout the book; Quinn and her friends look at nebula photos in ch. 9.</i>		
All Ages	 	 (1:32) Brief article and video with an overview of the Pleiades, including well-known myths. EarthSky.org: https://rb.gy/cc4kq3
	 	 (2:27) Make a star scope (of your favorite constellation) craft with how-to video. The Royal Greenwich Observatory: https://rb.gy/c5avzz
	 	(2:49) Brief video explaining how stars are born. Royal Greenwich Observatory: https://youtu.be/2n9eROa--mg
	 	 (2:27) Make “NubulArt” craft how-to video. Royal Greenwich Observatory: https://rb.gy/qxo0wx
Middle School	 	 Brief article about how the Pleiades myth may be the oldest story in the world. The Conversation: https://rb.gy/mxv49u
	 	 (1:02) Brief article with facts about the Pleiades, including a brief video on how the Kepler telescope discovered variability in the cluster. Space.com: https://www.space.com/pleiades.html
	 	(10:35) Informational video about star clusters, including the Pleiades. Crash Course in Astronomy: https://youtu.be/an4rgJ3O21A
	 	(10:35) Informational video about measuring distance in space—the Pleiades is often used to “ calibrate the cosmic-distance ladder. ” Crash Course in Astronomy: https://rb.gy/lycutg






Telescopes, Dark Skies, and Astrophotography

Dark skies and Quinn's telescope are an important elements of the setting due to Quinn's hobby of astrophotography.

All ages			Brief article with pictures about how telescopes work. NASA Space Place: https://rb.gy/550tzip
		 (10:00)	Informational video about how telescopes work. Espacepourlavie Montréal: https://www.youtube.com/watch?v=dLewUZ4guag
		 	Educational handouts and activities on dark skies. Dark Sky Texas: Level 1: https://txnsf.org/wp-content/uploads/2020/10/Level-One-Downloadable-Handouts.pdf Level 2: https://txnsf.org/wp-content/uploads/2020/10/Level-Two-Downloadable-Handouts.pdf
	 		Activities and art projects on dark skies. Dark Skies 4 Kids: https://www.darks skies4kids.org/activities
			The Royal Museums of Greenwich annual astrophotography competition winners: https://www.rmg.co.uk/whats-on/astrophotography-photographer-year/galleries/stars-nebulae-2023
Middle School		  (3:27)	Demonstration on how to simulate star trail photos in the classroom. Royal Observatory Greenwich: https://youtu.be/IKJydGOGsW8?list=PLb_8tQpMiE7Qf0JB_Hp4hWpBfXTqpq4ic
		 (4:56)	Informational video about the telescopes at Mauna Kea and the impact of light pollution and the atmosphere on what can be seen through a telescope. NASA Launchpad: https://rb.gy/mmlr57









Color and Light

Quinn and friends figure out an important clue in ch. 13 when they realize the color of light affects the perceived color of an object.

All Ages			A simple activity to observe how the colors of objects around you look different under different colored light. Ingrid Science: https://www.ingridscience.ca/node/563
Middle School		  (4:05)	Hands on activities and a video showing how colored light changes the color objects appear. Connecticut Science Center: https://ctsciencecenter.org/blog/science-at-play-change-the-color-of-the-world-around-you/

































Engineering: Geodesic Domes

Quinn's sister, Georgie, is an inventing and engineering prodigy. The geodesic sky dome she built for Quinn is described in ch. 8.

All Ages		   (2:31)	ZOOM cast members test the strength of a gumdrop dome. Support materials, including background reading, discussion questions, and handouts included. PBS: https://klru.pbslearningmedia.org/resource/phy03.sci.phys.mfe.zgumdrop/triangles-testing-the-strength-of-a-gumdrop-dome/
Middle School	 	 	Hands on activity with lesson plan on building and testing the strength of a dome made from marshmallows and toothpicks: The Machine Inside: https://www.datocms-assets.com/44232/1637177534-bioguide-dome0.pdf

Animals: Life Science

Constellation Clues is full of fun animals. Some (alpacas) are part of how the characters describe the setting (ch. 7), some have minor but memorable roles, like the fireflies (chs. 15 and 32) and Maisy the cow (she loves music, see ch. 7), some play a part in the mystery, like the bats (ch. 27) and the possum (chs. 15, 18, and 22). The cat, Milky Way, is a character in her own right.

All Ages		 (4:22)	Informational video about fireflies SciShow Kids: https://www.youtube.com/watch?v=Y7Rl1qjB2r8
		 (~15:00 each)	Multiple informational video hosted by kids (Bat Squad) about bats with companion classroom activities. Bat Conservational International: https://www.batcon.org/about-bats/games-and-activities/bat-squad/
		 (3:17)	News story featuring large bat colony exiting Bracken Cave in a “bat-nado.” KENS 5 News: https://www.youtube.com/watch?v=zcnlQfl1oQ0
			Basic fact sheet about possums. Pest World for Kids: https://www.pestworldforkids.org/pest-guide/opossums/
			Fact sheets and worksheets about possums. KidsKonnnect: https://kidskonnnect.com/animals/opossum/
	 	 (varies)	Fun videos of cows enjoying different kinds of music. Irish music played on an accordion: https://www.youtube.com/watch?v=jgYd089Ouz4 An instrumental version (on trombone) of Lorde’s “Royals”: https://www.youtube.com/watch?v=qs-emj1qR4 Dairy farmer playing trumpet: https://www.youtube.com/watch?v=IEFBXmZxlUw
			Heifer International’s “Alpacapalooza” Activity Pack: https://www.heifer.org/what-you-can-do/get-involved/schools/resources/alpacapalooza-alpaca-activity-pack.html
		 (2:10)	Brief video with cat facts. Nat Geo Kids: https://www.youtube.com/watch?v=pX3V9hoX1eM
Middle School			Handout on creating a firefly habitat. Firefly Conservation & Research: https://www.firefly.org/build-firefly-habitat
		 	“Bat Blitz” resources for teaching students about bats. Association of Fish & Wildlife Agencies’ Project WILD: https://www.fishwildlife.org/projectwild/wild-about-bats
		 (26:03)	Informational video about possums. Wildlife Center of Virginia: https://www.wildlifecenter.org/episode-five-opossums
	 	 (2:03)	NPR reporting on university studies on which types of music cows like best (includes a video of a jazz band playing to cows): https://www.npr.org/sections/thesalt/2014/03/06/285314648/secret-life-of-cows-part-deux-milking-mood-music
		 (5:33)	Bar SZ Ranch video: https://www.youtube.com/watch?v=PcTtXJoDm41s
		  (1:17)	101 cat facts plus a brief video. Charlottesville Cat Care Clinic: https://cvillecatcare.com/veterinary-topics/101-amazing-cat-facts-fun-trivia-about-your-feline-friend/