

Digital Adventure 360 Experience – Penguins

Lesson Summary

[Through the 360° image](#), students will inquire about penguins, specifically related to their characteristics, habitat/niche and human impact including climate change.

Learning Objectives

(NGSS) MS-LS4-4: Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

(SS GLCE) 6 – G6.1.1 Contemporary Investigations - Investigate a contemporary global issue by applying the skills of geographic inquiry (asking geographic questions, acquiring geographic information, organizing geographic information, analyzing geographic information, and answering geographic questions)and, when practical, develop a plan for action. *Global Climate Change – Investigate the impact of global climate change and describe the significance for human/environment relationships. *Human-Environmental Interactions – Investigate how policies from the past and their implementation have had positive or negative consequences for the environment in the future.

(ISTE) Creative Communicator: Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.

(ISTE) Global Collaborator: Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.

Learning Activities

Pre-activity - Choose what works for you and have students complete a [see-think-wonder](#).

1. Watch the penguin habitat live on the Detroit Zoo website <https://penguins.detroitzoo.org/the-penguins/>.
2. Watch this video to learn about penguins (23:44) <https://dptv.pbslearningmedia.org/resource/80059c24-697e-42d9-b7de-e2e165d15140/>.

Core Activity - In pairs have students investigate the [Thinglink 360° virtual image](#) on penguins for 20-30 minutes. Students are to choose 2 hotspots and complete a [I used to think, now I think](#) on each.

Thinglink 360 virtual image of penguins with these Hotspots:

1. Ice Fish Don't Melt | ScienceTake | New York Times - https://www.youtube.com/watch?v=su_DgG3Qfj8
2. Detroit Zoo | Polar Oceans Research Group - Penguins in Antarctica - https://www.youtube.com/watch?v=ieVYu_z3EIM
3. Effects Of Global Warming On Display In Antarctica (Podcast) - <https://www.npr.org/2017/03/08/519170712/effects-of-global-warming-on-display-in-antarctica>
4. **A Rockhopper Penguin Chick Debuts at the Lincoln Park Zoo in Chicago (Photo)** http://go.galegroup.com/ps/i.do?p=MSIC&sw=w&u=lom_accessmich&v=2.1&it=r&id=GALE%7CCT4099901926&asid=19aff2dcf609ee7e137f8d07fedf43a2 - **Rockhopper Pics.**
 - a. MLA Citation: "A Rockhopper Penguin Chick Debuts at the Lincoln Park Zoo in Chicago." UPI Photo Collection, 2009. Research in Context.
5. http://go.galegroup.com/ps/i.do?p=MSIC&sw=w&u=lom_accessmich&v=2.1&it=r&id=GALE%7CA443989958&asid=13886758cbd1c44fb92ee3090b7cc9dd - **Awkward Article (Penguin Adaptation Article)**
6. Animals in the extreme - http://go.galegroup.com/ps/i.do?p=MSIC&sw=w&u=lom_accessmich&v=2.1&it=r&id=GALE%7CA286825359&asid=465c4c44b34e091fd85dfbb09a6218f1
7. **Article (Penguins Helped and Hurt by Climate Change)** MLA Citation: "Penguins Helped and Hurt by Changing Climate." All Things Considered, 31 Mar. 2008. Research in Context. - <https://www.npr.org/templates/story/story.php?storyId=89239211>
8. http://link.galegroup.com/apps/doc/CT3294261409/OVIC?u=lom_accessmich&id=f692ceb9 **Infographic (Climate Change Threatens Emperor Penguins)** MLA Citation: "Climate Change Threatens Emperor Penguin." Tribune Content Agency Graphics, 2014. Opposing Viewpoints in Context.
9. http://go.galegroup.com/ps/i.do?p=MSIC&sw=whttp://link.galegroup.com/apps/doc/CT3294261409/OVIC?u=lom_accessmich&id=f692ceb9&u=lom_accessmich&v=2.1&it=r&id=GALE%7CA177310996&asid=ee906abff003a7899bfd29bc76051b19 - **Penguins Helped and Hurt by**

- Changing Climate (Article)** MLA Citation: "Penguins Helped and Hurt by Changing Climate." All Things Considered, 31 Mar. 2008. Research in Context
10. http://go.galegroup.com/ps/i.do?p=MSIC&sw=w&u=lom_accessmich&v=2.1&it=r&id=GALE%7CA446417187&asid=20346d5a83345cdf59181840e1085a51 - **Penguin Colony Uprooted by Ice in a Warming World (Article)** MLA Citation: "Penguin Colony Uprooted by Ice in a Warming World." Living on Earth, 11 Mar. 2016. Research in Context.
 11. *Detroit Zoo | Polar Oceans Research Group - Penguins in Antarctica* - https://www.youtube.com/watch?v=ieVYu_z3EIM
 12. *Penguin Poop Leads Ice Researchers to Unknown Colony* - <https://www.npr.org/2013/02/07/171307859/while-studying-ice-scientists-discover-huge-penguin-colony>
 13. **Africa Penguins in Peril (Video)** MLA Citation: "African Penguins in Peril as Race for Climate Deal Quickens." AFP News Footage, 2 Dec. 2015. Research in Context - <http://go.galegroup.com/ps/i.do?p=MSIC&sw=w&u=gale&v=2.1&it=r&id=GALE%7CCT3208640506&asid=ca8cb09b786ff5760e953079a31e7d42> -
 14. *Detroit Zoo | Polk Penguin Conservation Center - Go Pro tour* - https://www.youtube.com/watch?v=B2P_aQ-dWRA

Culminating Activity

Extension:

Save the Penguins: Teaching the science of heat transfer through engineering design

(Article) http://go.galegroup.com/ps/i.do?p=MSIC&sw=w&u=lom_accessmich&v=2.1&it=r&id=GALE%7CA240914936&asid=10ffed4ab8c168c1aef2db6ee7864ef9

MLA Citation: Schnittka, Christine, et al. "Save the penguins: teaching the science of heat transfer through engineering design." *Science Scope*, Nov. 2010, p. 82.

Research in Context.

Further research can be done through the Michigan eLibrary (<http://mel.org/>).

Recommended databases (<http://mel.org/databases>) by grade level are as follows:

Additional Resources

Grade Level	Database Name	Weblink (for all Michigan residents)
PreK - 3	Scholastic BookFLIX	http://galesupport.com/migeoipcheck/migeoipcheck-scholastic.php
K - 4	Britannica Elementary	http://www.galesupport.com/migeoipcheck/migeoipcheck-brit.php?database=BRELEM
5 - 7	Britannica Middle	http://www.galesupport.com/migeoipcheck/migeoipcheck-brit.php?database=BRMDDL
8 +	Britannica High	http://www.galesupport.com/migeoipcheck/migeoipcheck-brit.php?database=BRHIGH
PreK - 2	Early World of Learning	http://worldbookonline.com/ewol/home?subacct=O610
K - 8	eBooks K-8 Collection	http://galesupport.com/migeoipcheck/migeoipcheck-ebSCO.php?database=EBK8
K - 5	Kids InfoBits	http://www.galesupport.com/migeoipcheck/migeoipcheck-gale.php?database=ITKE
K - 8	NoveList K8+ (to identify books to read and create reading lists)	http://galesupport.com/migeoipcheck/migeoipcheck-ebSCO.php?database=NOVEL
K - 5	World Book for Kids	http://www.worldbookonline.com/kids/home?subacct=O6106
6 +	Gale Virtual Reference Library (Reference books including <i>Grzimek's Animal Life</i>)	http://www.galesupport.com/migeoipcheck/migeoipcheck-gale.php?database=GVRL
6 +	General Reference Center Gold	http://www.galesupport.com/migeoipcheck/migeoipcheck-gale.php?database=GRGM
6 +	InfoTrac Student Edition	http://www.galesupport.com/migeoipcheck/migeoipcheck-gale.php?database=STOM
6 +	Opposing Viewpoints in Context	http://www.galesupport.com/migeoipcheck/migeoipcheck-gale.php?database=OVIC
6 - 8 +	Research in Context	http://www.galesupport.com/migeoipcheck/migeoipcheck-gale.php?database=MSIC
K-12	PBS Learning Media	https://dptv.pbslearningmedia.org/