



# Teacher's Guide to **STREAMING SCIENCE** — **Ranches, Rivers, and Rats!**

DATE: Tuesday, April 24, 2018

START: 10 a.m. and 2 p.m. Central Time (approx. 45 minutes in length)

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## CONTENTS

- page 1 **Introduction**
  - page 2 **Technology**  
**Room Reservation**
  - page 2-3 **Supplemental Materials**  
**Recommended Timeline for Using Supplemental Materials**  
**Assessment Procedures and Timeline**
  - page 4 **LIVE Show Archive** *(Optional)*  
**Contact the Streaming Science Team**
- 

Thank you for participating in our second edition of *Streaming Science: Ranches, Rivers, and Rats*. This project is funded by the University of Nebraska Food for Health Collaboration Initiative, supported by EPSCoR, and includes partnerships among researchers at the University of Nebraska at Kearney, University of Nebraska-Lincoln, and the Platte Basin Timelapse project. Your participation in this electronic fieldtrip will provide valuable insights for our STEM education research, electronic field trip development, and creation of similar future programs.

In this LIVE interactive webstream, your students will hear from university scientists working in the areas of ecology, biology, water, and wildlife in the Nebraska Sandhills. Major themes of the program include: Sandhills ecology and ecosystems, application of the water cycle to the real-life natural watershed of Gracie Creek, and the study of the natural history of kangaroo rats.

This program is intended for middle and early high school students and to support Next Generation Science Standards such as:

MS-LS2-1, 2, 4 & 5	MS-ESS2-1, 4	MS-ESS3-1
HS-LS2-1, 6, 7, & 8	HS-ESS2-5, 2	HS-ESS3-1 & 6

Scientific inquiry and nature of science standards also are supported through an introduction to scientists, science careers, and real-world scientific field research.

Please use this teacher's guide to help plan and prepare for implementing a successful Streaming Science LIVE interactive webstream experience for your students!

- **Technology**

At least **two weeks before the LIVE webstream**, work with your school's technology specialist to test your web streaming connection. We will stream the program through online video platform UStream (<http://www.ustream.tv/>). You will want to make sure your school's firewall does not block the site.

We will rehearse the afternoon of Monday, April 23. You might try connecting to make sure the video and sound will work for you, before the live show on April 23.

Use this streaming URL: <http://www.ustream.tv/channel/uUu3bUMcj7K>

- **Room Reservation**

Ideally, you will adjust your daily schedule to participate in the LIVE webstream. Treat this like a real-life field trip event, build up the hype with your students, and take time out of the daily routine to meet university scientists through the magic of technology!

Reserve a large enough space for students to participate together. You will also want either:

- a) a couple of laptops at the front or back of the room for students to submit their questions in the UStream window or
- b) laptops/tablets at each individual student's desk connected to UStream

- **Supplemental Materials**

These materials are designed for classroom use before and/or after the LIVE webstream.

- 1) Explore educational content about the Sandhills at the PBT Learn site:  
<http://plattebasintimelapse.com/learn/>

We recommend beginning with:

<http://plattebasintimelapse.com/learn/the-nebraska-sandhills/>

- 2) Learn about the water cycle and the real-life water shed through Isabella Gomez's research:

Isabella's "The Sandhills from the Sky":

<http://plattebasintimelapse.com/notebook/2017/11/the-sandhills-from-the-sky/>

- 3) Introduce your students to the Sandhills through these three time-lapse cameras:

Shoemaker Lake: <http://plattebasintimelapse.com/explore/galleries/shoemaker-lake/>

Latta Lake: <http://plattebasintimelapse.com/explore/galleries/latta-lake/>

Gracie Creek: <http://plattebasintimelapse.com/explore/galleries/gracie-creek/>

- 4) Read some of the stories and view photos of ranchers and film crews working in the Sandhills, including information about the region's animals and prairie practices:

Sarah Sortum: Sandhills Rancher:

<http://plattebasintimelapse.com/2016/04/sarah-sortum-sandhills-rancher/>

The Switzers and Sandhills - Cattle Drive:

<http://plattebasintimelapse.com/notebook/2016/01/the-switzers-and-sandhills-cattle-drive/>A Trip to the Sandhills:

<http://plattebasintimelapse.com/notebook/2014/06/a-trip-to-the-sandhills/>

Sparring in Slow Motion:

<http://plattebasintimelapse.com/notebook/2016/06/sparring-in-slow-motion/>

A Ranch for the Birds:

<http://plattebasintimelapse.com/notebook/2015/04/practice-blog/>

Burning Prairie:

<http://plattebasintimelapse.com/notebook/2015/03/burning-prairie/>

Travels in the Kingdom of Grass:

<http://plattebasintimelapse.com/notebook/2014/09/travels-in-the-kingdom-of-grass/>

### ○ **Recommended Timeline for Using Supplemental Materials**

DAY 1: Pre-assessment and Timelapse Cameras

DAY 2: Sandhills Story/Photos 1 (recommended: <http://plattebasintimelapse.com/learn/the-nebraska-sandhills/>)

DAY 3: Sandhills Story/Photos 2

DAY 4: Sandhills Story/Photos 3

DAY 5: Sandhills Story/Photos 4

DAY 6: LIVE webstream

DAY 7: Post-assessment

One week later: review scientists' answers to webstream questions

—OR—

#### **Back-load Approach**

DAY 1: Pre-assessment

DAY 2: LIVE webstream

DAY 3: Sandhills Stories/Photos

DAY 4: Post-assessment

One week later: review scientists' answers to webstream questions

### ○ **Assessment Procedures and Timeline**

You and your students' participation in the assessment portion of this program will be crucial in helping us further develop *Streaming Science*. We have created a pre- and post-assessment in order to gauge your students' content learning, STEM engagement, and interest in the program.

Email us to let us know:

1. approximately many students you will have participating
2. your address to which we can mail the parental consent forms and assessment copies

Please utilize the following recommended assessment timeline:

- April 9-13 = send home and receive completed parent consent forms
- April 16-20 = students take pre-assessment
- April 24= live EFT from the Nebraska Sandhills to pilot schools at 10am and 2pm
- April 30 – May 4 = students take post-assessment; teachers take post-survey
- By May 7-11 = all assessments returned

○ **LIVE Webstream Archive** (*Optional*)

A recording of your LIVE webstream Streaming Science experience will be available online the following week.

*To access the archive video:*

UNL YouTube Streaming Science playlist

[https://www.youtube.com/playlist?list=PLh0k4GzppsQEjbyD7hMxoxRxVvjm\\_S1IT](https://www.youtube.com/playlist?list=PLh0k4GzppsQEjbyD7hMxoxRxVvjm_S1IT)

○ **Contact the Streaming Science Team**

- Before the LIVE webstream:

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- April 23 afternoon rehearsal and April 24 LIVE webstream:

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