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# ACTIVATE:

# AWESOME!

Welcome to the CTY Webinar

*The Poetry of Science and The Science of Poetry*



# BEFORE WE GET STARTED

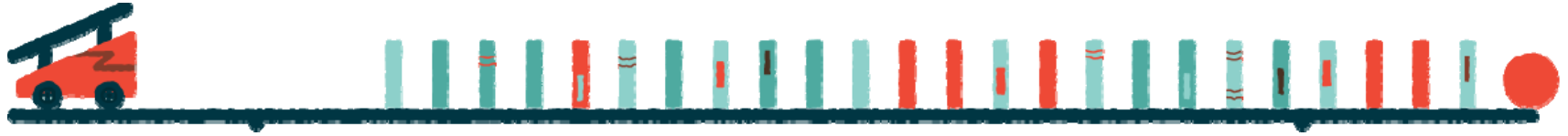
- Welcome and introductions
- Today's session will last about 20 minutes
- Feel free to ask questions at any time by speaking into your phone or by using the "Q&A" feature at the top of your screen
- Please press \*6 to mute your phone; #6 will unmute your phone
- Copies of the slides from today's presentation will be available from the web page you will be directed when we conclude the session



# The Poetry of Science and The Science of Poetry

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CTY Summer Programs



# WEBINAR AGENDA

- Original Idea
- Deeper Meaning
- Poetic Forms
- Cross Cutting Concepts
- Example Lesson
- Questions?

# Original Idea

- Research has shown that when students think deeply about the meanings of words, statements, or sentences, they gain better understanding of subjects.
- Poetry invites attention to and experimentation with words and their meanings.
- Tools and techniques allow students to both express and explore scientific ideas through poetry-writing.
- Suggested scientific concepts, complementary poetry lessons, and sample poems are provided to parents/teachers to incorporate in their multi-disciplinary, conventional, or STEAM classrooms.

# Deeper Meaning

“I understand that everything is connected, that all roads meet, and that all rivers flow into the same sea.”

— Paulo Coelho





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# Poetic Forms

## Features and Scientific Applications

- Sonnets
- Sestinas
- Villanelles
- Pantoums



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# Poetic Forms: Sonnets

Sonnets make arguments.

There are three main variations of the sonnet. Each comprises 14 lines of rhyming iambic pentameter and a “turn” before a resolution.

EXAMPLE: Consider the Petrarchan sonnet for describing unequal relationships such as dominant and recessive genes, atoms in covalent bonds, processes of reduction such as condensation.





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## Poetic Forms: Sonnet Example

Skipping Stones by Sachiko Murakami (1980 - )

I fling flat stones into the surf, corral  
my anger in the strangely angled pose.  
Each beat's concentric blip a sound so odd  
it clarifies the brine to mellow blues.  
My mother's ex once skimmed his bottle caps  
down at the lake; not littering, I thought,  
the glinting disc's fourteen discrete hop-hops.  
Now I trust black, the solid strength of rock.  
My hand must learn the pebble's weight, and know  
which chips will change the shape and spoil the trick;  
this can't be accurately guessed, and though  
some seem to work without my gauging it;  
I fling them to new ocean bottom homes,  
and some I leave to dry upon the beach. Skip stones.



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# Poetic Forms: Sestinas

A sestina models “intricate repetition.”

A complex French verse form, usually unrhymed, consisting of six stanzas of six lines each and a three-line envoy.

EXAMPLE: Consider the sestina for poems describing transmutation, conditional meaning, repurposing or reusing, generations, interactions between multiple parties.



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# Poetic Forms: Villanelles

A villanelle revisits and repeats two ideas over nineteen lines.

The highly structured villanelle is a nineteen-line poem with two repeating rhymes and two refrains.

EXAMPLE: Consider the villanelle for poems describing cycles, orbits, relations between pairs and environments, echoes, repetition with variation.



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## Poetic Forms: Pantoum

Pantoums are Malaysian verse forms adapted by French poets and occasionally imitated in English.

It comprises a series of quatrains, with the second and fourth lines of each quatrain repeated as the first and third lines of the next. The second and fourth lines of the final stanza repeat the first and third lines of the first stanza.

EXAMPLE: Consider the pantoum for poems describing amplification, waves, cycles, generation, regeneration, recurrence, sound, repetition with variation.

# Cross Cutting Concepts

- We want to help students delve deeper into their understanding of both poetry and science.
- Combining the studies of poetry and science engages students with Next Generation Science Standards Crosscutting Concepts of Pattern, Causality, and Systems.
- According to the NGSS Framework, these concepts “provide students with connections and intellectual tools that are related across the differing areas of disciplinary content and can enrich their application of practices and their understanding of core ideas” (Framework p. 233).

# Cross Cutting Concepts

- By embedding science topics in poetry lessons, we develop students' awareness of these connections and give them practice with the intellectual tools necessary for success in both areas.
- Students can study patterns to make and find meaning, to organize information, and to delineate relationships.
- Students learn structures, forms, and their functions. By combining poetic and scientific experimentation, students encounter in language the stability and change analogous to the ecosystems and engineered systems they observe in the field and in the lab.

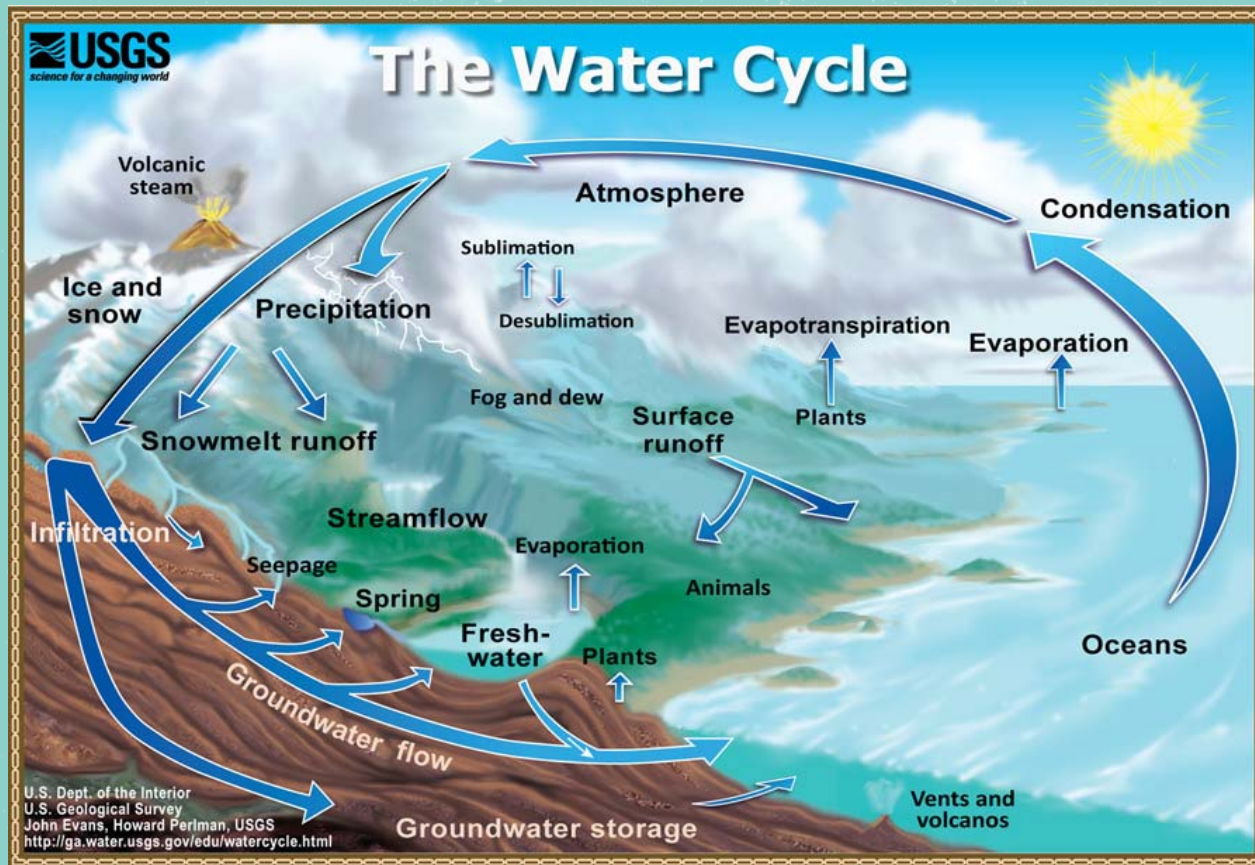


# Cross Cutting Concepts

- In this interdisciplinary presentation, we provide key concepts of poetry writing for use by science teachers, and definitions of scientific principles for use by English teachers which can be used to engage students in this creative activity.

# Example Lesson

## Describing a Process



# Example Lesson – Describing a Process

**Topic:** The Water Cycle

**Pre-writing:** Prepare to draft a poem about the water cycle

- Collect all the water-related words and phrases you know into a word bank.
- List all of the places you interact with water during its cycle.
- Imagine the places where water goes that you do not. Describe those places.
- List the words you associate with hearing, touching, seeing, tasting, and smelling water during its cycle.
- Build a list of verbs related to travel in the water cycle.
- Review your collection of words and mark the ones you like best. Which words make sounds that please your ears? Which are most precise? Which evoke a sensation? Draw from these words as you draft your poem.

**Prompt:** Draft a poem depicting the water cycle. Write at least one stanza for each stage of the cycle.

**Revision:** Four steps



Questions?

