Engaging Young Scientists Through Fairy Tales

NSTA Charlotte Area Conference
Session # 21238
November 29, 2018
What are TILTs?

• Traveling Interdisciplinary Literacy Trunks (TILTs) are teacher-designed, interdisciplinary units of study that are aligned with academic standards from multiple content areas with an emphasis on writing across the curriculum.

• TILTs include a unit plan, lesson plans, children’s literature, science equipment, math manipulatives, teacher resource lists, and more.
Unit Plan Overview for Traveling Interdisciplinary Literacy Trunk (TILT)

Title of Unit: ___________________ ________________________  Grade Level: _____  Duration: ________

Developed by: ________________________________________________________________________________

Alignment with South Carolina Academic Standards for two or more content areas:

<table>
<thead>
<tr>
<th>Science</th>
<th>Social Studies</th>
<th>ELA</th>
<th>Mathematics</th>
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Connections to one or more Exploratories:

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<tr>
<th>Art</th>
<th>Music</th>
<th>Technology</th>
<th>PE</th>
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Summary of activities showing connections between content areas

Text Set (This might include children’s literature, films, maps, brochures, magazines, websites, and other resources)

<table>
<thead>
<tr>
<th>Essential Questions</th>
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<th>Content Area Vocabulary</th>
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<th>Pre-Writing and Writing Activities</th>
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<th>Instructional Strategies</th>
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<th>Accommodations, Modalities of Learning, and Differentiating Instruction</th>
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<th>Assessment</th>
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Attached:
1. Implementation Guide
2. Daily Lesson Plans in Learning Cycle, 5E, or 7E format
Week 1 Overview

ELA
- Read Alouds

Math
- Sort and Classify with manipulatives

Science
- Animal DVds

Social Studies
- Animals on the map

Music/PE
- We will practice moving like animals and singing about animals.

Objective:
- I can use multi-step word problem strategies to solve real-world problems.
- I can demonstrate an understanding of the properties of light and sound.
- I can explain how a change in one factor affects a change in another.
Planting Seeds of Knowledge

By Tyquaisha Ingram, Ivey Peteet, Melissa Tindall, and Mallory Walp
TILT: Fractured Fairy Tales

• The Three Little Pigs
• Jack and the Beanstalk
• Cinderella
TILT: Fractured Fairy Tales

• **Science**

*Life Science:* Students will plant bean seeds in different mediums to compare growth.

*Physical Science:* Students will design and test a structure that can withstand the wolf’s wind.

• **Literacy**

Venn diagrams, Wanted posters, Writing RAFTs
<table>
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<th>Science &amp; Engineering Processes</th>
<th>Activities/Questions</th>
<th>Cross Cutting Concepts</th>
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| **SEP #1 – Ask questions and define problems** | How do seeds travel?  
Which seeds float and why?  
How do plants produce their own food using energy from the sun?  
How do leaves change in different seasons? How could we collect and represent this data? | Structure and Function; Energy and Matter; Stability & Change                                             |
| **SEP #3 – Plan and conduct investigations** | What happens when you soak a lima bean in water?  
Engineer an invention based on properties of seeds.  
How long does it take for a pumpkin to decompose? How could we slow it down or speed it up?  
What will happen to plants that receive different amounts of water?  
What will happen to plants that receive different amounts of sunlight?  
Which soil is best for growing seeds? | Structure and Function; Systems and Models; Cause & Effect                                               |
Investigate Plant Growth

Let’s Experiment!

Plant Growth Measurement Data

<table>
<thead>
<tr>
<th>Date</th>
<th>Sand</th>
<th>Clay</th>
<th>Soil</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/1/18</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>9/2/18</td>
<td>1</td>
<td>1</td>
<td>3</td>
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<td>9/3/18</td>
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<td>6</td>
<td>11</td>
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<td>9/10/18</td>
<td>5</td>
<td>6</td>
<td>12</td>
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<td>9/11/18</td>
<td>5</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>9/12/18</td>
<td>6</td>
<td>7</td>
<td>16</td>
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https://firstgradeblueskies.com/jack-beanstalk-activities/
Scroll down to the Giant Glove Mystery
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<tr>
<td><strong>SEP #1 – Ask questions and define problems</strong></td>
<td>Which shapes will support the most weight? How could we find out? What materials will support the most weight? How could we find out? Describe the properties of straw, sticks, and bricks.</td>
<td>Structure &amp; Function; Energy &amp; Matter</td>
</tr>
<tr>
<td><strong>SEP #3 – Plan and conduct investigations</strong></td>
<td>How could we measure and record wind speed? How can we make a pinwheel spin faster? How many puffs of air does it take to move an object 12 inches? Blow on a light object and a heavy object, and compare how far each one will go. Measure the mass of different objects, and then predict/measure how far they can move using a tabletop fan with 3 settings. What blows in the wind? Tie a plate coated with Vaseline to a tree to collect what the wind blows.</td>
<td>Energy &amp; Matter; Cause &amp; Effect</td>
</tr>
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Designing a house for a pig
Designing a house for a pig

https://www.youtube.com/watch?v=Z4iUbeVRSjc
The Engineering Design Process

- Ask
- Imagine
- Plan
- Create
- Test
- Improve
- Share
Let’s design a house for a pig!

**ASK:** Can your team design and build a house for a pig that won’t blow down?

**IMAGINE:** Brainstorm with your team.

**PLAN:** Gather straws, sticks, bricks and other materials. Talk about your ideas.

**CREATE:** You will have 8 minutes to build your house.

**TEST:** Use a box fan to test your design.

**IMPROVE:** Analyze other groups’ designs. Make modifications to your own design.

**SHARE:** Report out. What worked? What didn’t work? What did you change?
Three Little Pigs Design Challenge

https://www,midcolumbia.stem.org/Lists/IDEA%20Tools/DisplayIDEA.aspx?ID=25
Extension activities

Here is an activity that extends “designing a house for a pig” for upper elementary students:

https://www.pinterest.com/pin/103934703881408481/
Extension activities

For middle school students:
https://www.pinterest.com/pin/428756827004940675/
Making Connections to Literacy

Fractured Fairy Tales
Literature Circle Books (4 copies)

1. Jack and the Beanstalk
2. Trust Me, Jack's Beanstalk Stinks!
3. James Marshall's Cinderella
4. Seriously, Cinderella Is So Annoying! The Story of Cinderella as Told by the Wicked Stepmother
5. The Three Little Pigs
6. The True Story of the Three Little Pigs
Text Set: Jack and the Beanstalk

1. Jack and the Beanstalk
2. Calamity Jack
3. A Home in the Sky
4. Jacqques et la Canne a Sucre: A Cajun Jack and the Beanstalk
5. Kate and the Beanstalk
6. Paco and the Giant Chile Plant
7. Waynetta and the Cornstalk
8. Jack and the Giant Barbecue
9. Jack and the Beanstalk
Text Set: Cinderella

Teaching with Cinderella Stories from Around the World
Cinderella: Folk Tale Classics
Adelita: A Mexican Cinderella
Cendrillon: A Caribbean Cinderella
Cinder Edna
Bubba the Cowboy Prince: A Fractured Texas Tale
Cinderella Smith
Cinderella Outgrows the Glass Slipper and Other Fractured Fairy Tale Plays
The Golden Sandal: A Middle Eastern Cinderella Story
Pigling: A Cinderella Story, A Korean Tale
The Rough-Face Girl

Mufaro's Beautiful Daughters: An African Tale
Cinderella Stories Around the World: 4 Beloved Tales
Yeh Shen: A Cinderella Story from China
The Egyptian Cinderella
The Korean Cinderella
The Irish Cinderlad
Cinderella
Cinder-Elly
Prince Cinders
Cindy Ellen: A Wild Western Cinderella
Bigfoot Cinderrrrrrrella
Cinderella Readalong with CD
Text Set: The Three Little Pigs

The Three Little Pigs with CD
The Pig Who Went Home on Sunday: An Appalachian Folktale
The Three Horrid Little Pigs
The Three Little Aliens and the Big Bad Robot
Three Little Cajun Pigs
The Three Little Fish and the Big Bad Shark
The Three Little Javelinas
The Three Little Wolves and the Big Bad Pig
The Three Little Pigs and the Somewhat Bad Wolf
Huff & Puff: Can You Blow Down the Houses of the Three Little Pigs?
The Three Little Pigs: An Architectural Tale
Ziggy Piggy and the Three Little Pigs
The Three Little Tamales
TILT: Fractured Fairy Tales

ELA

• Students will use a Venn diagram or double bubble map to compare different versions.
• They will create a Wanted Poster for the villain in the fairy tale.
• Students will write RAFTs (Role, Audience, Format, Topic, Strong Verb).
3 Little Pigs

- made waffles
- Mama pig
  - went to Gulf of Mexico
- Wolf killed deer down
- Wolf went down the chimney
- blew up trash bag
- help me note

True Story of the 3 Little Pigs

- ate two pig
- pigs rude
- wolf was sic
- wolf went to jail
- he needed sugar for cake
- pigs had no clothes
- pig showed chin

Both
- wolf blew down the houses
- same houses
- 3 pigs and a wolf
- wolf
- feat by the hair of my chin

Ching Chin Ching
- back house
- written

[The three Little Wolves end the Big Bad Pig]
Jack and the Beanstalk

- Jack told the story
- Ogre
- Cow
- Beans
- Begins with
- Jack
- Died

Giant
- The giant told the story
- Giant begins with
giant got
Hurt
cartoon

Big creatures

Fee fi fo fum!
Wanted

Reward
$500,000

Big Bad Pig

Wanted For:

The Big Bad Pig destroyed the year's horses. Attacked 3 wells for no good reason. Trespassing at the 3 wells' houses.
Role, Audience, Format, Topic

• Writing a RAFT encourages creative thinking and motivates students to demonstrate understanding in a nontraditional yet informational written format.

• This strategy works with all disciplines and is great for differentiation; it can be adjusted for any topic or skill level.

• The student has a role to play and as they think in that role, they have to communicate to a given audience using the format noted on the topic listed.

• This strategy requires students to process information and use critical thinking, rather than just write answers to questions.
Let's Write RAFTs!

- Role: The three little pigs' mother
- Audience: The Fairy Godmother
- Format: Tweet
- Topic: What was I thinking
- Strong Verb: Announce
Traveling Science

Twenty-six teacher-designed TILTs are now available to check out for use in your classroom, free of charge, through the Ruth Patrick Science Education Center (RPSEC) Traveling Science and Mathematics Demonstrations Program at USC Aiken.
Free Resources for Teachers

• How to create your own TILT
• Download TILT unit plans
• Check out trunks for your classroom

http://rpsec.usca.edu/CE-MIST/
Partial List of Elementary TILTs

**Fractured Fairy Tales- Grade 1**
Developed by: Ann Stauffer and Anne Harper (Millbrook Elementary)

**Exploring Light and Shadows- Grade 1**
Developed by: Breanne Creswell, Kristen Smith, and Mistie Osborne (Aiken Elementary School)

**Let It Grow- Grade 1**
Developed by Karyn Monique Fennell-Dawson, Michelle Kelly, Tonya Pearson, Holly Whitson (Greendale Elementary)
Partial List of Elementary TILTs

**Amazing Animals- Kindergarten & Grade 2**
Developed by: Anna Underwood, Valerie Wise, and Ashley Walpole (East Aiken School of the Arts)

**Planting Seeds of Knowledge- Grade 1**
Developed by: Melissa Tindall, Ivy Peteet, Mallory Walp, and Tyquashia Ingram (East Aiken School of the Arts)

**Paul Bunyan & Friends (Tall Tales)- Grade 2**
Developed by: Paula Simmons, Sarah McKinnon, and Amber Williams (Aiken Elementary School)
Thank you for attending our session!

For more information, please contact:
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