Teaching Science to English Learners

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Outline

- Strategies for teaching science to ELs
  - Group learning
  - Vocabulary
  - Assessments
  - Demos and modeling
- Example lesson: Introduction to genetics
- Teacher time for lesson planning
Group Learning

- Purposeful seating chart
  - Newcomers near intermediate and advanced ELs
- Think – pair (group) – share
  - Provide sentence frames for talking opportunities
- Increased engagement
Vocabulary strategies

- Word walls
  - Post unit vocabulary words in highly visible spot and refer to often
  - Encourage use of word wall during assessments
  - Can also be used for “mortar” words
Vocabulary strategies

- Bilingual/visual vocabulary
- Useful for “brick” AND “mortar” words
- Encourage use during assessments
Vocabulary strategies

- Vocabulary review
- Science bingo
- Speed date

Science Bingo!

- Choose 25 of your vocabulary words.
- Write one word in each of the 25 boxes in whatever order you prefer. Please do not repeat words.
- Your teacher will read the definitions of each vocabulary term. Place a bean/stone/chip/etc. in the bingo square when your term is called.
- When you have five in a row, shout “Bingo!”
Assessments

- Multiple choice
- Oral assessments
- Answer in first language
- Allow Spanish/visual vocabulary lists and word-walls
Demos and modeling

- Model assignments.
  - I do, we do, you do.
- Demonstrate lab procedures
Using controlled speech

- Avoid idioms
- Talk slowly
- Pause to define words for students.
Routines

• Great if students know what to expect when they are given an assignment, review, assessment, etc.
Let’s give this a try...

Introduction to Heredity and Genetics

Life Science

Name ____________________________________________ Date _____________ Period ____

Everyone is unique – that is to say that there is no one in this world exactly like you. But we do share similar traits as our mothers and fathers, brothers and sisters, even with our grandparents and cousins. A trait is a characteristic, like having curly hair for example.

In the following activity, you will examine your own traits. Check the appropriate response to describe some of your traits. If you aren’t sure, ask your neighbor to help you decide.

- Widow’s peak
  - Yes_____
  - No_____  Draw a simple sketch of
- Hair
  - Straight_____  Curly _____
- Earlobe
  - Attached_____  Free_____  showing the traits to the left:
- Hand clasp
  - Right over left_____  Left over right_____  Fill in your results.
- Freckles
  - Yes_____  No_____
- Handedness
  - Right_____  Left_____
- Dimples
  - Yes_____  No_____
- Tongue Roller
  - Yes_____  No_____
- Cleft chin
  - Yes_____  No_____

Our genes carry two forms of every trait – one form came from our mother, and one form came from our father. Some forms of a trait can be dominant, meaning that it is the trait that is expressed or shows up. Some forms of a trait can be recessive, meaning that it is in our genes but is not expressed because it has been covered up by the dominant trait.

In the next activity, you will work with a partner, but both of you will participate and turn in your own worksheet. The two of you will be “parents” and you are going to make a “baby” by passing down the traits listed above. You will each flip the coin once to decide if your “baby” will have the dominant trait or the recessive trait. Use the chart below to reference, and fill in your results.

**HEAVY = DOMINANT
tails = recessive**

<table>
<thead>
<tr>
<th>Trait</th>
<th>Dominant Expression</th>
<th>Recessive Expression</th>
<th>Mother</th>
<th>Father</th>
<th>Trait combination</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widow’s Peak</td>
<td>Widows peak (W)</td>
<td>Straight hairline (w)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hair</td>
<td>STRAIGHT (S)</td>
<td>curly (s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earlobe</td>
<td>ATTACHED (A)</td>
<td>free (a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hand clasp</td>
<td>LEFT OVER RIGHT (L)</td>
<td>right over left (l)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hairline

Widow’s Peak

Straight Hairline
Curly hair and straight hair
Earlobes

Attached Lobe

“Free” Lobe
Free Earlobes
Hand Clasp

Left over right

Right over left
Freckles

Freckles

No Freckles
Left Handed or Right Handed
Dimples

Dimples

No Dimples
Tongue roller vs. non tongue roller
References

Figure References