MIXTURES & SOLUTIONS

For Special Ed

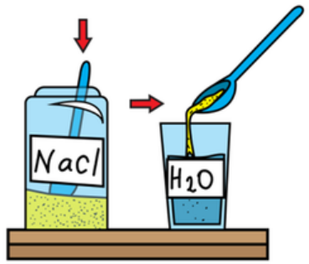
INCLUDES GOOGLE SLIDES

This unit was created with this guy in mind. He has autism and an intellectual disability. He is a non-reader, and loves the sound of piano keys. With some support he is able to do this unit, and enjoys the challenge. He is my tester!!

Color version

Mixtures and Solution Unit

By
Christa Joy
Special Needs for Special Kids



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Also included in this resource as separate files:

- Lesson plans
- Links and directions to digital activities
- PowerPoint (this is the book in the lesson plans)
- Voice recorded PowerPoint
- Activities in black and white

This unit contains 13 days of material that is in both printable and digital formats. I have included a detailed lesson plan to help you make the most of everything in this unit including how to add some group activities.

It comes in 2 separate files. One in color and one in black and white.

Mixtures and Solutions Lesson Plan

Preparation

- Print out a vocabulary board for each student to use throughout unit
  - Laminate or place in page protector
- Book
  - Print out, laminate, and bind
  - OR your students can listen to the movie version
- Vocabulary cards
  - Print out a set of cards onto cardstock and laminate
  - Make one set for each student and also one for the teacher to use in I Spy games

Preassessment (do day 1 before starting lesson)

- Choose the form of the assessment that best fits the learning level of your students
- Give the assessment to assess what your students may already know
- I cannot emphasize enough how important this step is. If you want to see growth, this preassessment is so important!!

Teaching Tips

1. *Color Coding*: this is a really easy way to add more structure to a matching activity. Outline or color in an empty box or sorting label. Outline or color in the corresponding picture symbols the same colors. Becomes a color matching task.
   a. For more info, read more here: https://specialneedsforspecialkids.org/2015/09/05/using-color-coding-for-differentiation/
   b. I also have a blog post on differentiating one activity 3 ways: https://specialneedsforspecialkids.org/2018/10/22/differentiating-1-activity-3-ways-easily
2. *Make you own cop*
   yesterday. For that
   a. I often compl
   that I could u
   b. My copies w
   more support
   work.

Quick Look

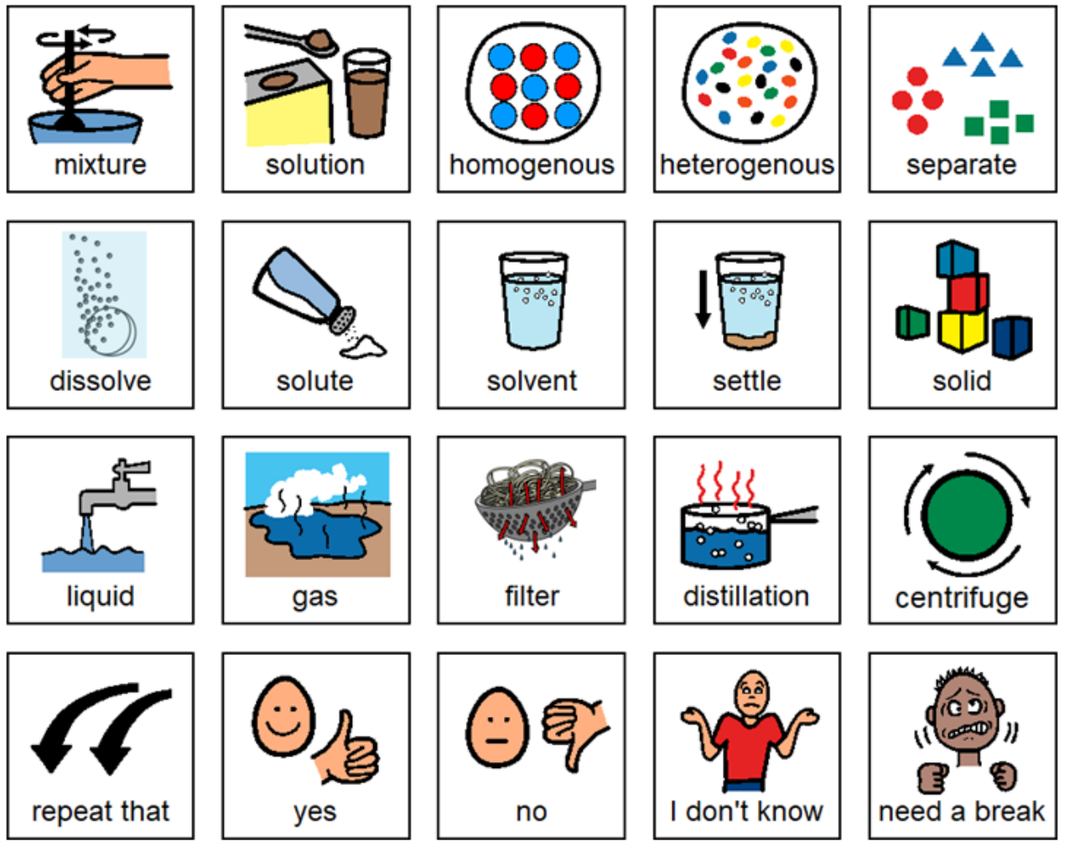
Day	Activity		Day	Activity
1	• Book • Vocab cards activity • Circle map		8	• Book • Experiment #2
2	• Book • Vocab cards activity • Circle map		9	• Book • Vocab cut and paste • Vocabulary puzzle
3	• Book • Vocab cards activity • Word map		10	• Book • Vocab cut and paste • Vocabulary puzzle
4	• Book • Vocab cards activity • Sorting activity		11	• Book • Vocab cards acti • Close workshe
5	• Book • Vocab cards activity • Solutes and solvents		12	• Book • Vocab car • Close wo
6	• Book • Vocab cards activity • Solutes and solvents		13	• Assess
7	• Book • Experiment #1			

Day 5

Activity	Notes	Materials
Read or listen to a recording of the book (10 minutes)	• Read through the story, asking lots of questions • Continue to make connections between book and vocabulary board	• Book • Vocabulary board
Vocabulary cards speed game (15 minutes)	• Place the finished vocabulary cards in the middle of the table • Either hold up or describe a card and the student who can find it first wins and keeps the card • The student with the most cards at the end is the winner	• Vocabulary cards • Vocabulary board
Sorting activity Review (5 minutes)	• Review the sorting activity from yesterday	• Finished sorting activity
Labeling activity (10 minutes)	• Complete the first table where students will identify solutes and solvents ○ Add color coding if needed for more support • Make connections to book and real-life examples	• Labeling activity • Scissors • Glue
Sharing (10 minutes)	• Each student shares their finished table with the group using the communication method of their choice	• Completed activity • Communication devices

The lesson plans contain:

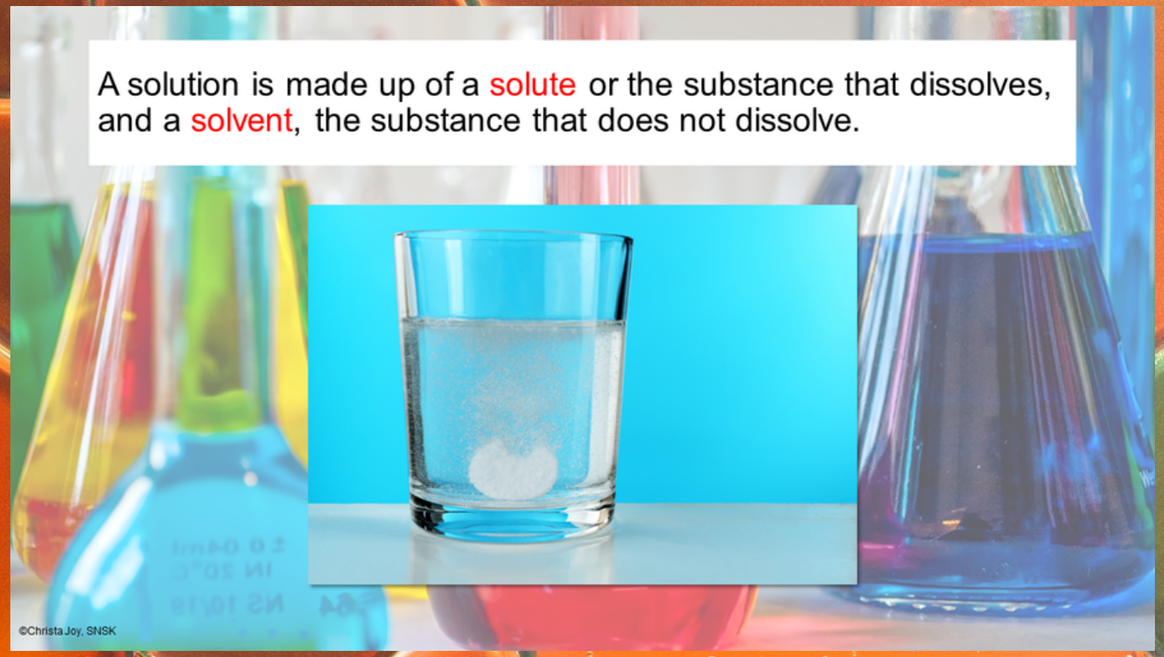
- Overall tips for teaching students with significant needs
- A quick look at what you will do each day
- Detailed instructions on how that day's lesson should run

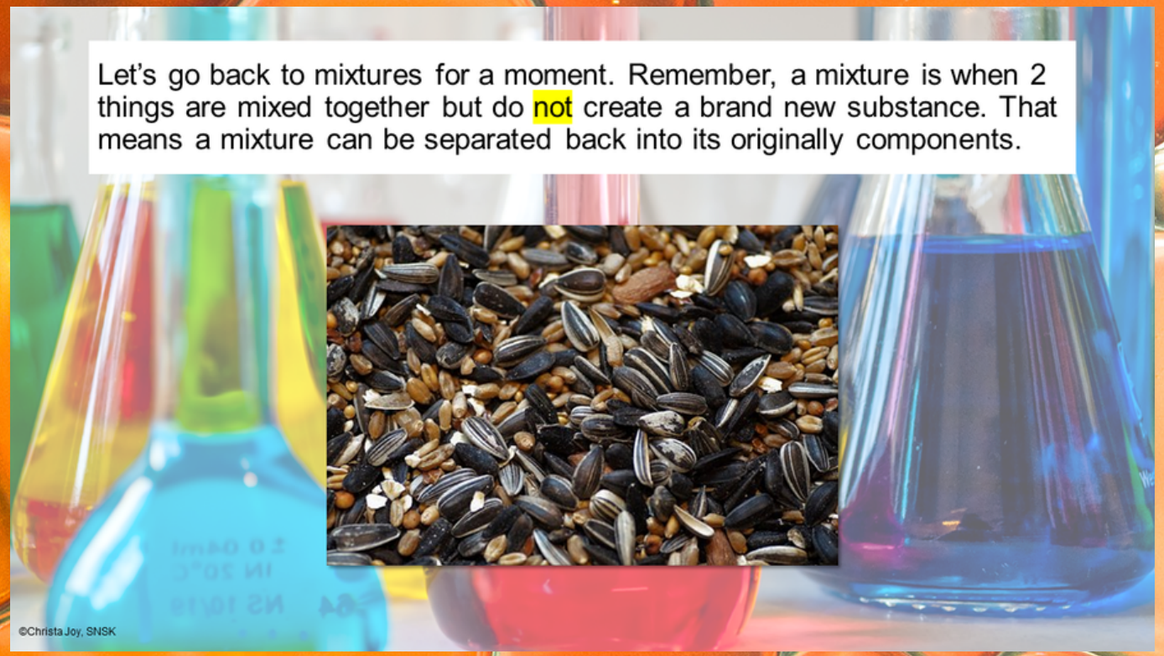


This unit comes with a vocabulary board.

Vocabulary boards are great for ALL students to assist with participation and engagement in group discussions.

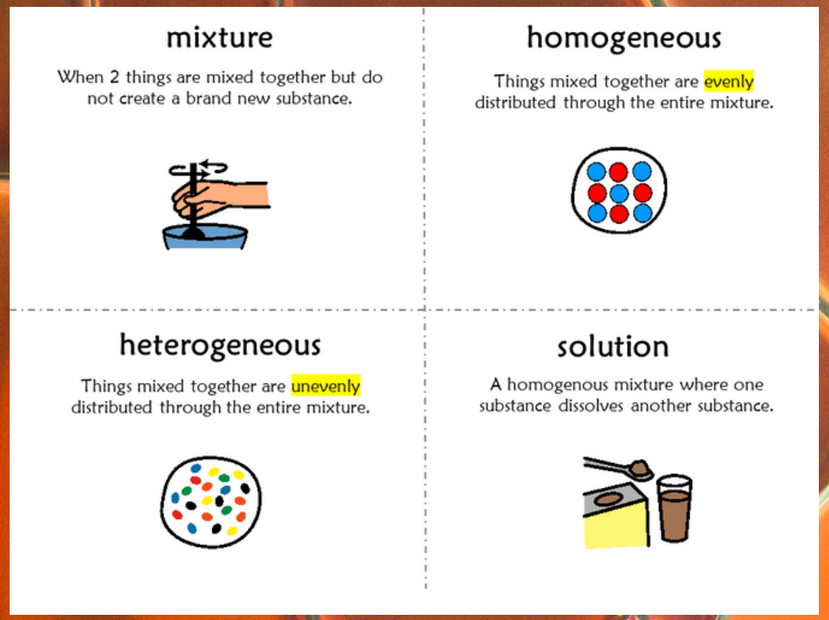
Tips on how to use in the unit!!

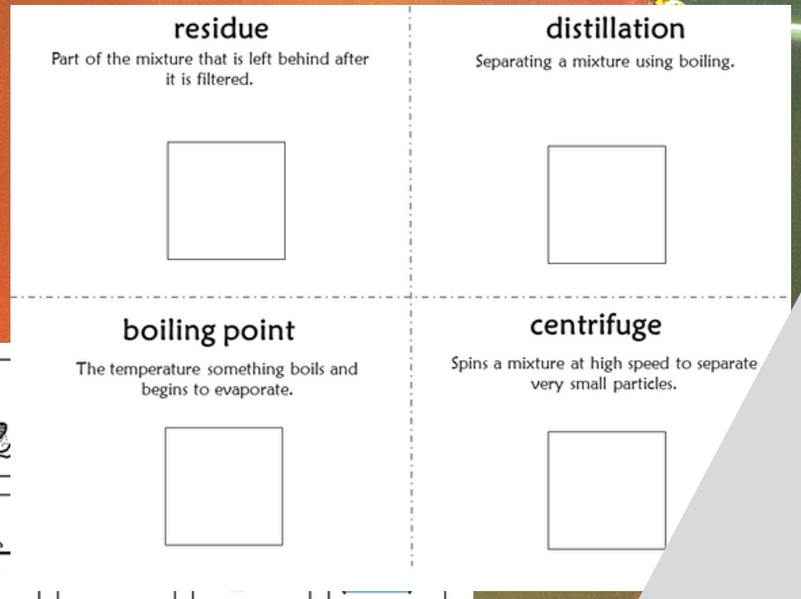


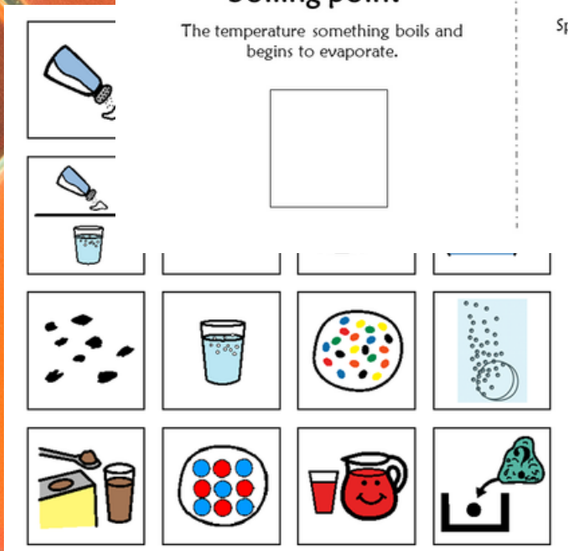


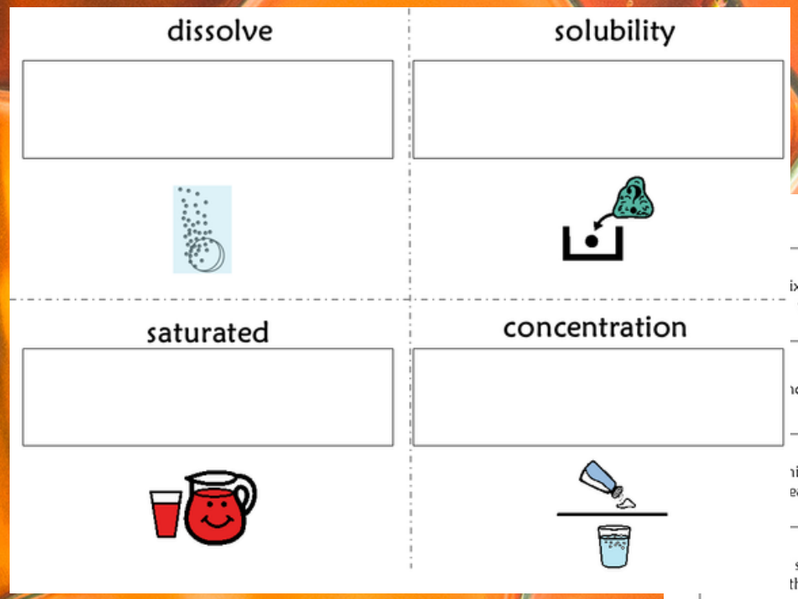
There is a 50 page book with this unit using simple text and photos.

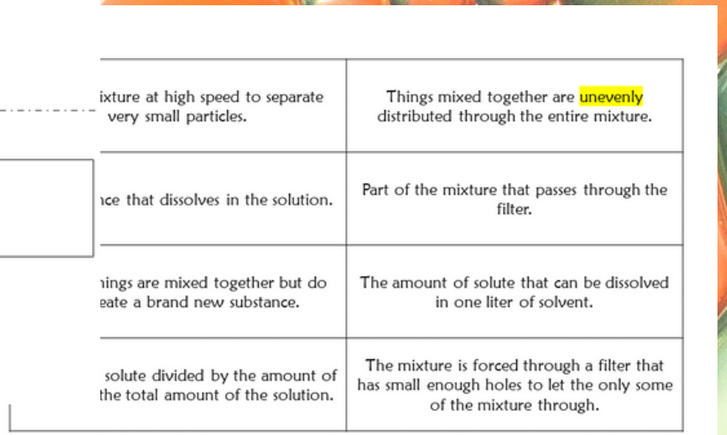
It comes in a pdf version as well as a voice recorded powerpoint (so you don't have to print it out.)











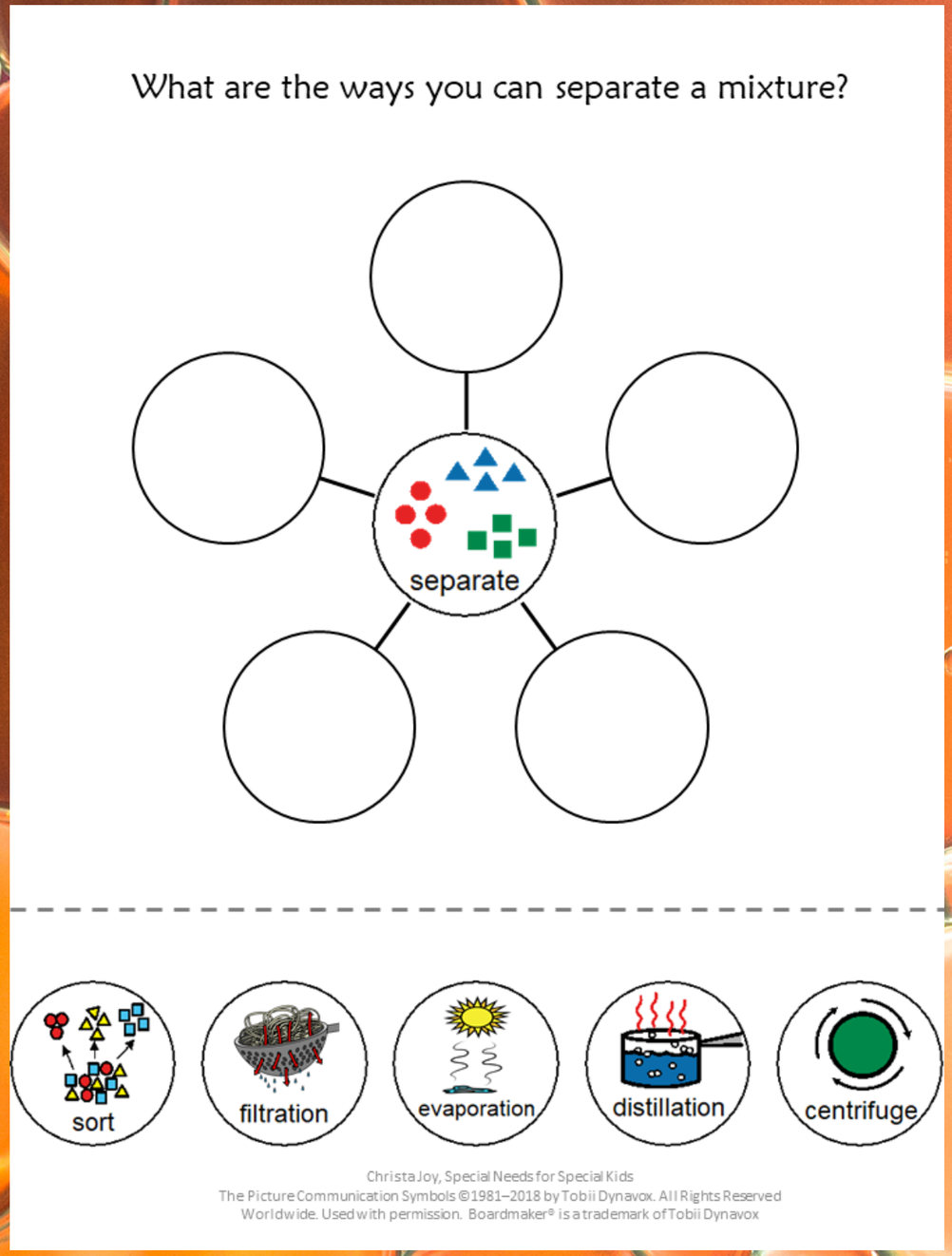
There are 16 vocabulary cards that come in color and black and white.

- Included are suggestions for group activities to do with these each day.
- There is also a cut-and-paste activity.

There are 2 circle maps. One is on mixtures and one is on solutions that review the main points from the book.

Circle maps are a great way for students to see the concept at a glance. There are 2 versions:

- One is errorless
- One has wrong answers mixed in students will have to set aside.



There is a word map showing the different ways a mixture can be separated. This is an errorless activity.

There is a sorting activity looking at homogeneous and heterogeneous mixtures. Suggestions for differentiation and answer key are included.

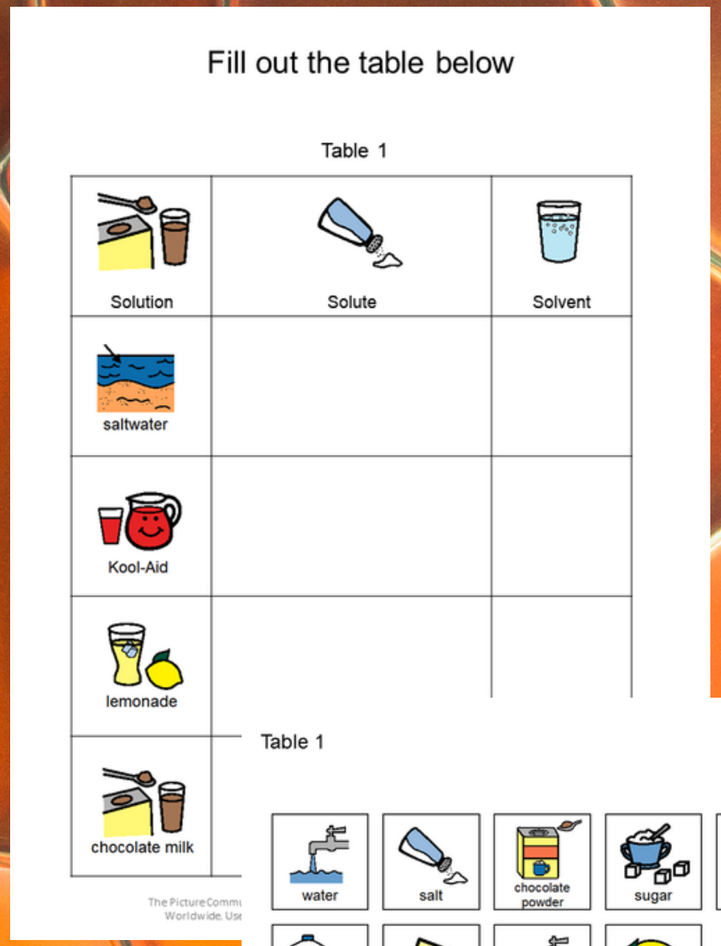

Fill out the table below

Table 1

Solution	Solute	Solvent
saltwater		
Kool-Aid		
lemonade		
chocolate milk		


Fill out the table below

Table 2

Solution	Solute	Solvent
iced tea		
bubbles		
punch		
tea		

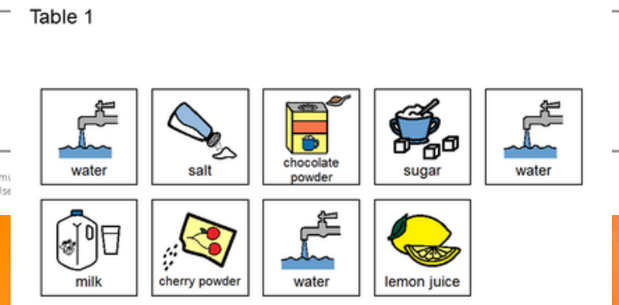


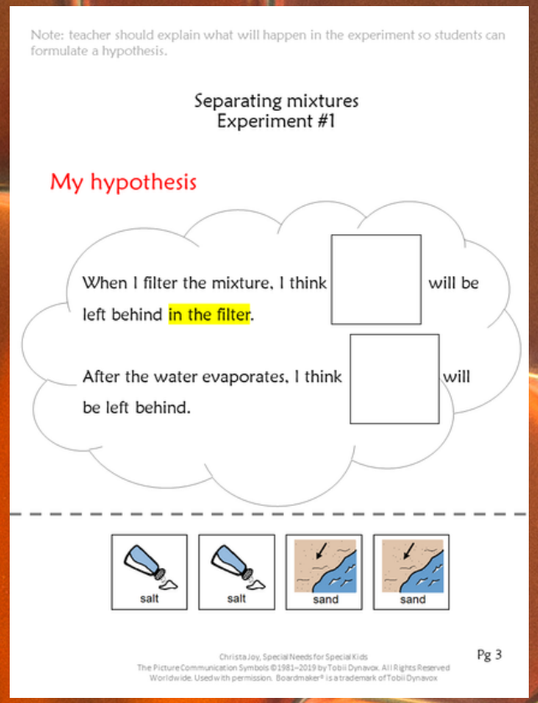
Table 1

water	salt	chocolate powder	sugar	water
milk	cherry powder	water	lemon juice	


Table 2

water	fruit juice concentrate	water	water	honey
instant tea	soap	water	tea bag	

Students will practice identifying the solute and solvent in common solutions. Suggestions for differentiation and answer key are included.

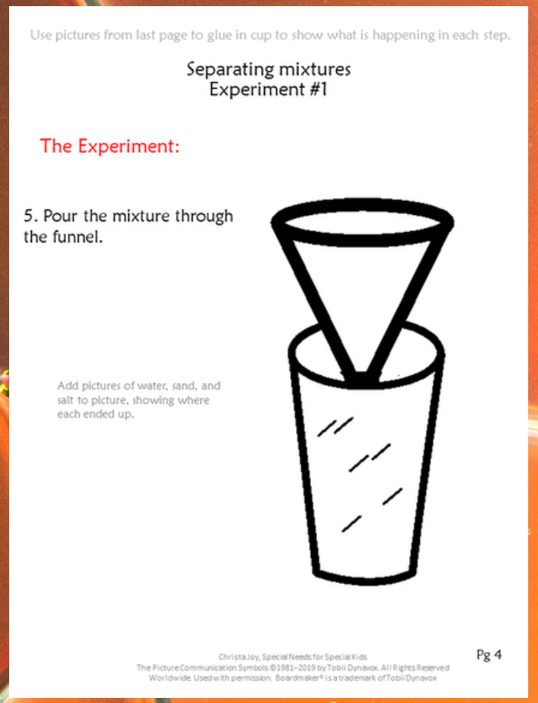

Note: teacher should explain what will happen in the experiment so students can formulate a hypothesis.

Separating mixtures
Experiment #1

My hypothesis

When I filter the mixture, I think [ ] will be left behind in the filter.

After the water evaporates, I think [ ] will be left behind.


Use pictures from last page to glue in cup to show what is happening in each step.

Separating mixtures
Experiment #1

The Experiment:

5. Pour the mixture through the funnel.

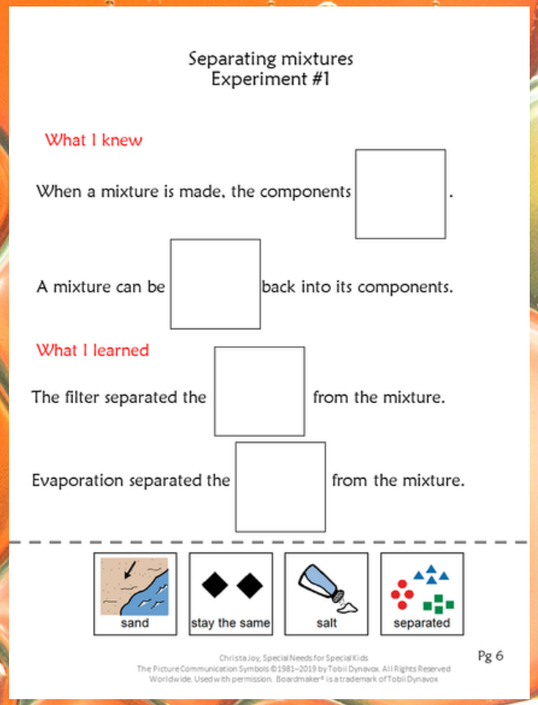
Add pictures of water, sand, and salt to picture, showing where each ended up.


This is an optional step for students to record their results separate from the pictures.

Separating mixtures
Experiment #1

Observations

	What I can see in cup	What I see in filter
Mixture without water		
Mixture with water		
Mixture poured through funnel		
After water has evaporated		


Separating mixtures
Experiment #1

What I knew

When a mixture is made, the components [ ].

A mixture can be [ ] back into its components.

What I learned

The filter separated the [ ] from the mixture.

Evaporation separated the [ ] from the mixture.

There are 2 experiments included in this unit. The first one is on separating mixtures. It guides students through creating and testing a hypothesis. At the end, they summarize what they have learned.

Detailed teacher instructions are included.

Note: teacher should explain what will happen in the experiment so students can formulate a hypothesis.

Testing Solubilities
Experiment #2

My hypothesis

I think the order of solubility will be:

least		most

salt	baking soda	sugar

Testing Solubilities
Experiment #2

Stop when it no longer dissolves.

Sugar	Observation (circle answer)
1 spoon	All dissolve? ✓ ✗
2 spoons	All dissolve? ✓ ✗
3 spoons	All dissolve? ✓ ✗
4 spoons	All dissolve? ✓ ✗
5 spoons	All dissolve? ✓ ✗
6 spoons	All dissolve? ✓ ✗
7 spoons	All dissolve? ✓ ✗
8 spoons	All dissolve? ✓ ✗
9 spoons	All dissolve? ✓ ✗
10 spoons	All dissolve? ✓ ✗

Use pictures from last page to glue in chart.

Testing Solubilities
Experiment #2

Summary Observations

	Total # spoons added
Sugar	
Baking Soda	
Salt	

Least spoons		Most spoons

Solubility →

Testing Solubilities
Experiment #2

What I knew

When a solution is saturated, the [ ] will sit at the bottom.

The more soluble a substance is, the [ ] spoonfuls you will have to add.

What I learned

[ ] was the most soluble.

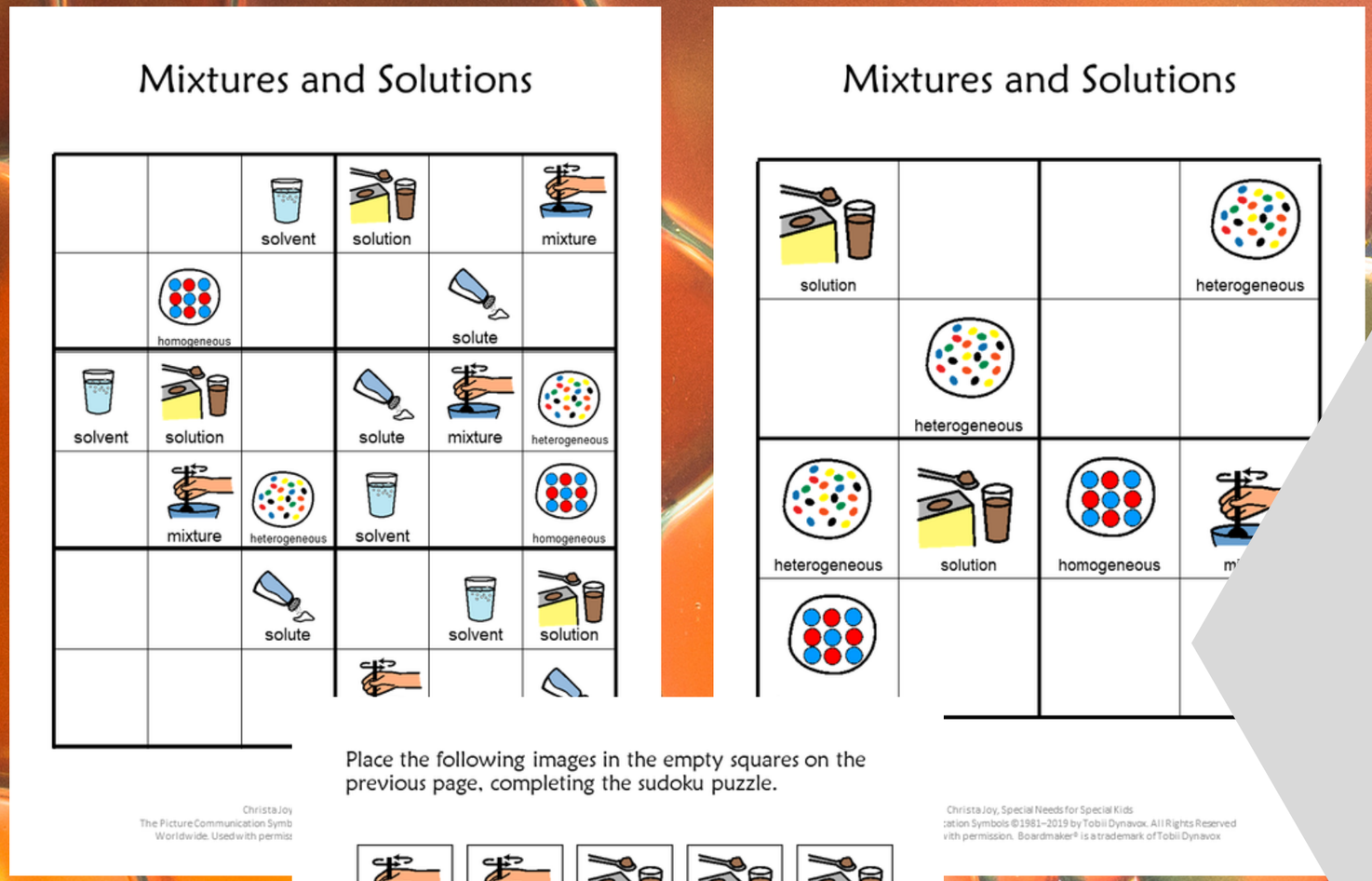
[ ] was the least soluble.

more	sugar	substance	salt

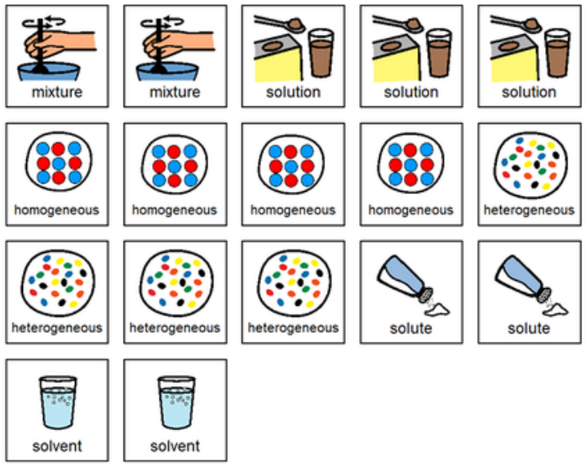
The second one explores the solubility of common solutes in water.

Detailed teacher instructions are included.

Neither of these experiments require heat.



Place the following images in the empty squares on the previous page, completing the sudoku puzzle.

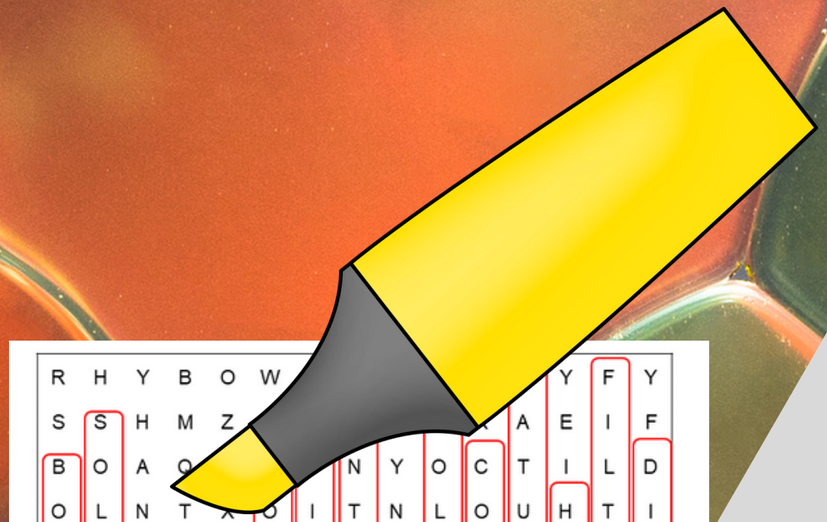


There is a Sudoku puzzle in this unit as well. This is a great way to work with the new vocabulary!!

There are 2 versions plus answer keys.

R	H	Y	B	O	W	Y	C	I	F	P	S	Y	F	Y
S	S	H	M	Z	C	Y	E	F	S	X	A	E	I	F
B	O	A	Q	S	S	D	N	Y	O	C	T	I	L	D
O	L	N	T	X	O	I	T	N	L	O	U	H	T	I
I	U	A	J	Z	L	S	R	S	V	N	R	O	R	S
L	B	G	L	N	U	S	I	R	E	C	A	M	A	T
I	I	V	A	Z	T	O	F	E	N	E	T	O	T	I
N	L	T	W	Z	I	L	U	S	T	N	E	G	I	L
G	I	H	U	I	O	V	G	I	C	T	D	E	O	L
P	T	R	Q	B	N	E	E	D	K	R	S	N	N	A
O	Y	L	M	H	W	Z	H	U	T	A	O	E	R	T
I	M	I	X	T	U	R	E	E	B	T	L	O	U	I
N	L	Q	P	G	C	W	M	A	M	I	U	U	U	O
T	F	I	L	T	R	A	T	E	U	O	T	S	D	N
L	I	H	E	T	E	R	O	G	E	N	E	O	U	S

filtration	concentration	boiling point	mixture
solvent	filtrate	saturated	solution
centrifuge	homogeneous	residue	solute
distillation	heterogeneous	solubility	dissolve



R	H	Y	B	O	W	Y	C	I	F	P	S	Y	F	Y
S	S	H	M	Z	C	Y	E	F	S	X	A	E	I	F
B	O	A	Q	S	S	D	N	Y	O	C	T	I	L	D
O	L	N	T	X	O	I	T	N	L	O	U	H	T	I
I	U	A	J	Z	L	S	R	S	V	N	R	O	R	S
L	B	G	L	N	U	S	I	R	E	C	A	M	A	T
I	I	V	A	Z	T	O	F	E	N	E	T	O	T	I
N	L	T	W	Z	I	L	U	S	T	N	E	G	I	L
G	I	H	U	I	O	V	G	I	C	T	D	E	O	L
P	T	R	Q	B	N	E	E	D	K	R	S	N	N	A
O	Y	L	M	H	W	Z	H	U	T	A	O	E	R	T
I	M	I	X	T	U	R	E	E	B	T	L	O	U	I
N	L	Q	P	G	C	W	M	A	M	I	U	U	U	O
T	F	I	L	T	R	A	T	E	U	O	T	S	D	N
L	I	H	E	T	E	R	O	G	E	N	E	O	U	S

filtration	concentration	boiling point	mixture
solvent	filtrate	saturated	solution
centrifuge	homogeneous	residue	solute
distillation	heterogeneous	solubility	dissolve

There is also a word search to work with vocabulary. If your students cannot do a word search, have them highlight the circle words on the answer key.

Mixtures

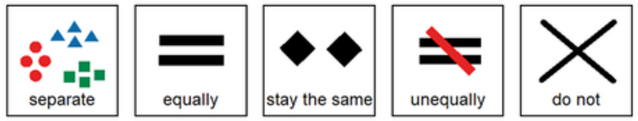
1. Mixtures [ ] create a new substance.

2. A homogeneous mixture has substances [ ] distributed.

3. A heterogeneous mixture has substances [ ] distributed.

4. You can [ ] components in a mixture.

5. The components in the mixture [ ] and do not change.



Solutions

1. A solution is a [ ] mixture.

2. In a solution, components are [ ] distributed.

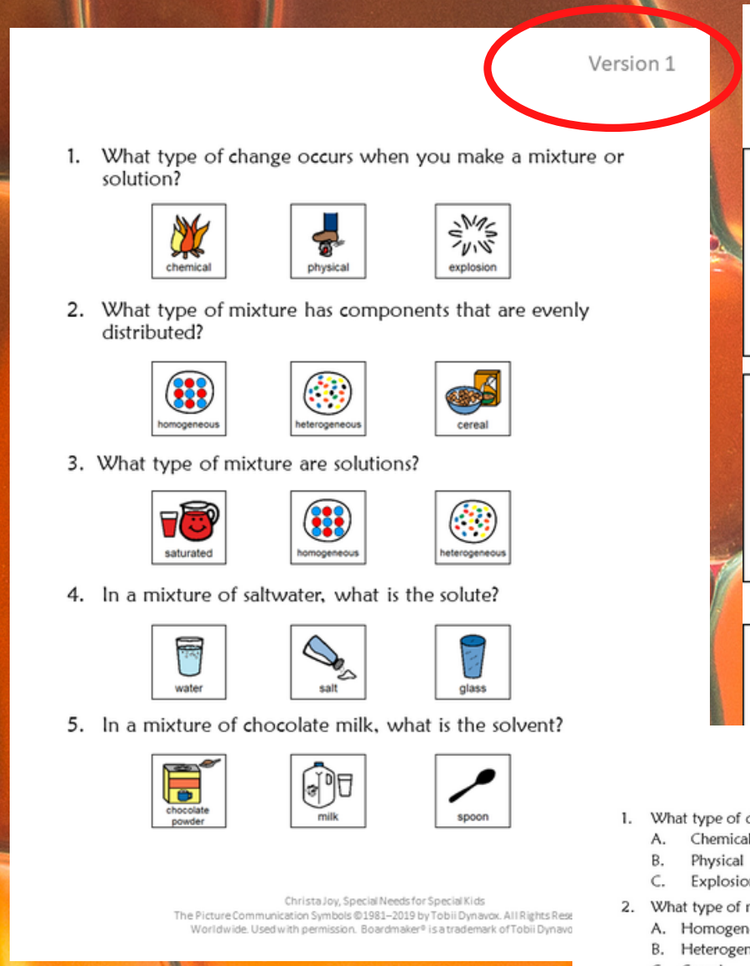
3. You make a solution by [ ] one component in another.

4. The [ ] is the component that dissolves.

5. The [ ] is the component that does not dissolve.

Close worksheets are a great informal assessment. This unit has 10 questions that review mixtures and 10 questions that review solutions.

Answer key included.


Version 1

1. What type of change occurs when you make a mixture or solution?

chemical | physical | explosion

2. What type of mixture has components that are evenly distributed?

homogeneous | heterogeneous | cereal

3. What type of mixture are solutions?

saturated | homogeneous | heterogeneous

4. In a mixture of saltwater, what is the solute?

water | salt | glass

5. In a mixture of chocolate milk, what is the solvent?

chocolate powder | milk | spoon

Christa Joy, Special Needs for Special Kids
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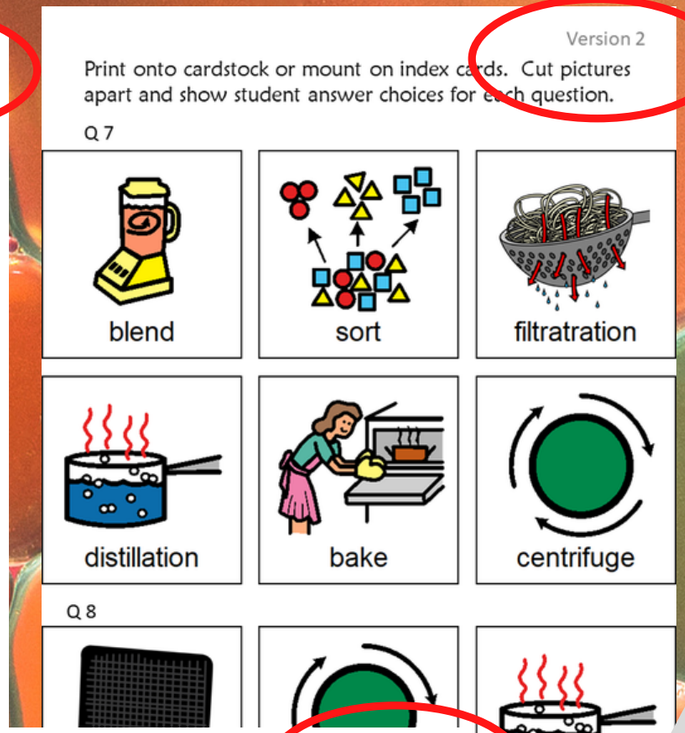

Version 2

Print onto cardstock or mount on index cards. Cut pictures apart and show student answer choices for each question.

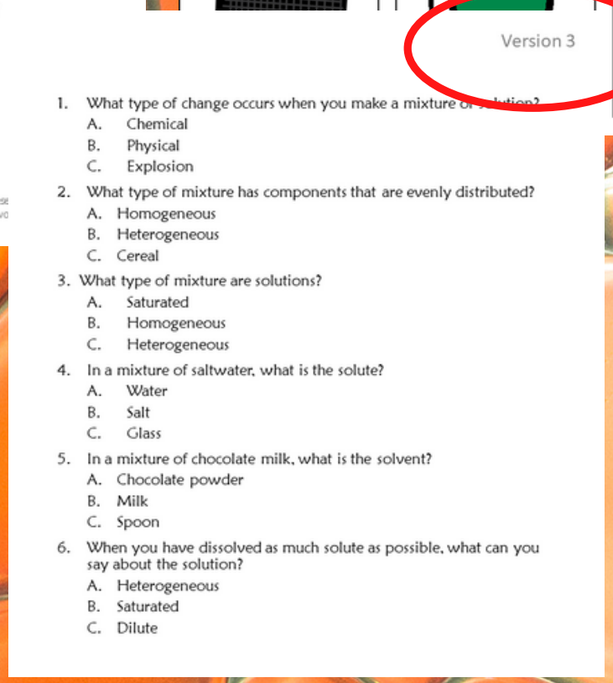
Q 7

blend | sort | filtratration

distillation | bake | centrifuge

Q 8

boiling


Version 3

1. What type of change occurs when you make a mixture or solution?
   A. Chemical
   B. Physical
   C. Explosion
2. What type of mixture has components that are evenly distributed?
   A. Homogeneous
   B. Heterogeneous
   C. Cereal
3. What type of mixture are solutions?
   A. Saturated
   B. Homogeneous
   C. Heterogeneous
4. In a mixture of saltwater, what is the solute?
   A. Water
   B. Salt
   C. Glass
5. In a mixture of chocolate milk, what is the solvent?
   A. Chocolate powder
   B. Milk
   C. Spoon
6. When you have dissolved as much solute as possible, what can you say about the solution?
   A. Heterogeneous
   B. Saturated
   C. Dilute

FINALLY the assessment!! There are 3 versions.

- 10 questions with 3 picture choices for each question
- cut out the answer choices and glue them on index cards
- traditional multiple choice

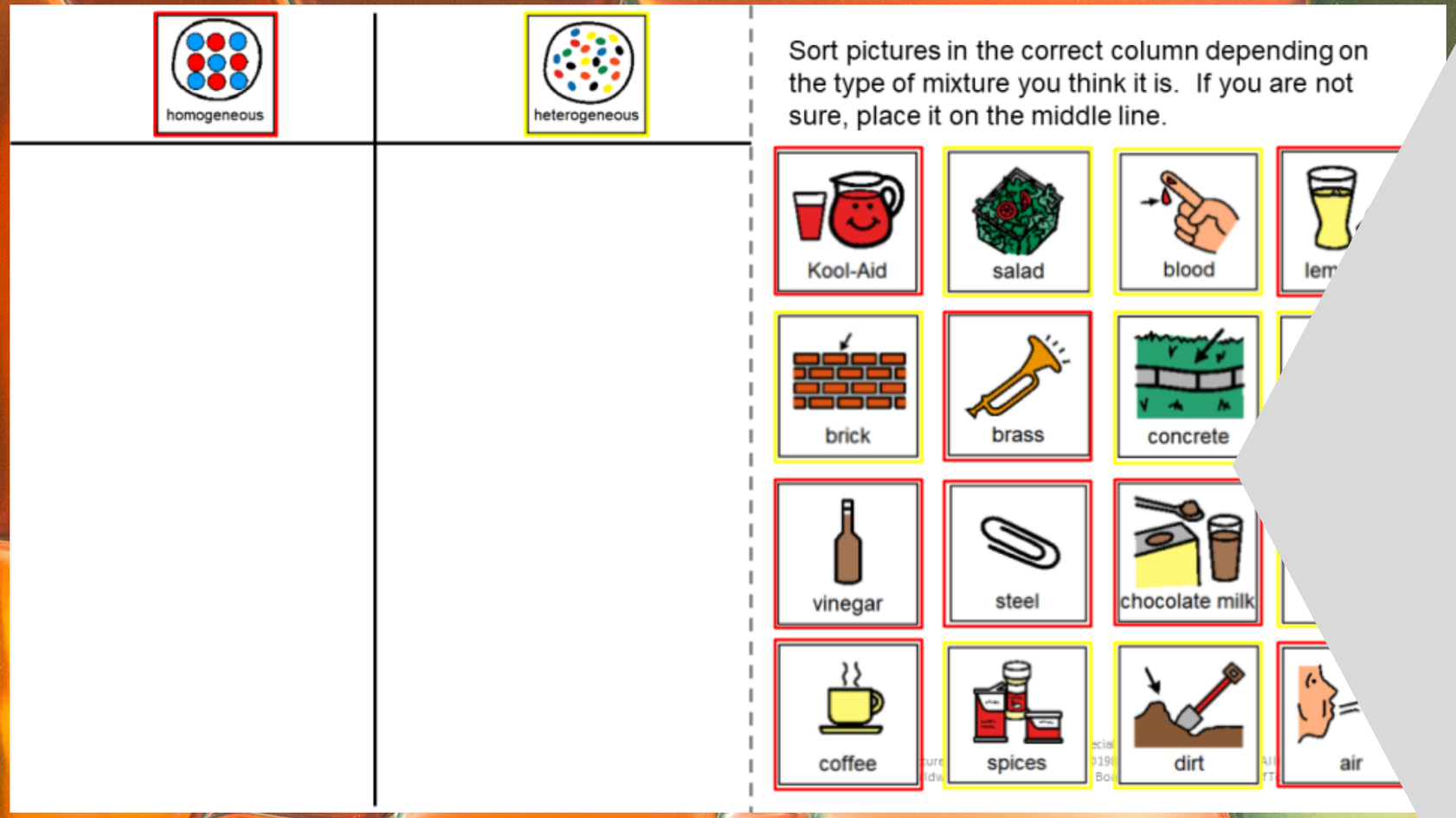
Answer key included.

This unit also has digital activities. There is a movie version of the books students can listen to read aloud.

Solution	Solute	Solvent
saltwater		
Kool-Aid		
lemonade		
chocolate milk		

Sort pictures into correct column depending if they are the solute or solvent in each solution. If you are not sure, leave it on this side.

The digital activities have students click and drag their answers.



There are 2 sets of slides. One set has color-coding for more support.

People on my team:

Materials needed:

- salt
- 3 clear cups
- sugar
- water
- baking soda
- spoon

Testing Solubilities
Experiment #2

1. Type the team members in the boxes.
2. Check off each item as you collect it.

Identify components of each mixture

	solute	solvent
Cup 1		
Cup 2		
Cup 3		

Testing Solubilities
Experiment #2

Place the components you will be using in this experiment in the correct columns.

- baking soda
- sugar
- salt
- water
- water
- water

The 2 experiments also come in a digital format.

This resource comes in a zipped folder. You will need to unzip the folder to access all the contents which include:

- 13 days of lesson plans
- Mixtures and Solutions activities in color
- Mixtures and Solutions activities in black and white
- Voice-recorded PowerPoint show
- Mixtures and Solutions book (PowerPoint) to use with activities
- Links and directions to digital activities

For more chemistry resources, check out:

- Physical and Chemical Changes
- Atoms
- Periodic Table