

Instructor Notes

Lesson: Mental Health

Objectives:

- Present essential concepts about mental wellness.
- Provide students avenues for professional mental health providers if necessary.
- Relate mental health to overall well-being.
- Foster a love for learning by providing hands-on activities.
- Utilize various critical thinking skills related to mental health across the curriculum.

Subjects: Reading, writing, science, math, social studies, critical thinking, and resource referrals.

Procedure:

1. Start out by doing some "*Mental Spring Cleaning*". It doesn't matter what time of the year it is, we all can benefit from a positive overview of our lives.
2. Read the "*Positive Mental Health*" handout to learn what mental health is and what causes problems. This will give background information that will be helpful in daily life and also helpful for some of the other lessons. Discuss with the class what their perceptions are of good mental health, stress, and what they do to handle stress in their lives.
3. Celebrate "health" by planning some World Health Day activities.
4. April is National Humor Month. Humor is an important way to maintain mental health, improve your studying, and enrich your life. Humor helps you feel better! *Laugh* may mean expressing amusement, to be in stitches, to chortle, to crow, to giggle, or to snicker. Write six sentences using the word laugh. Each sentence must use a different meaning of the word. It was once said, "The most wasted day of all is that in which we have not laughed." Explain what this quote means to you. **ESL ACTIVITY**
5. In "*The Wizard of Oz*" Dorothy wishes she was somewhere over the rainbow "where dreams that you dream really do come true." Have you ever wanted that? Well, Dorothy gets her wish. And you can work to make your wishes come true—if you turn them into goals. To achieve goals you must have a positive attitude. But... a positive attitude doesn't just happen, it takes work. Brainstorm with the class circumstances, people, or things that make them

happy. Write their responses on the board. Discuss how they can help themselves attain this happiness by taking positive steps. Read the *"Steps to Success"* and use the *"positive steps"* sheet as an action plan. Students can use the toes to write 10 steps they will take to help them reach their goal of happiness. Have students cut out the footprints and glue to a piece of construction paper. Then display all the footprints in the hallway so the students can be reminded of their action plans. *(Remember: give students the option to NOT post their goals. Some of them may want to keep their goals private.) (There is a corresponding activity in the Home Visit Notes.)*

6. Read the *"Mood Disorders"* handout. Discuss how light can affect your mood. Read the *"Are you SAD?"* handout and complete the worksheet. How is light controlled by the seasons? Read the *"What Causes the Seasons?"* handout to find out. Then try some of the hands-on exercises that deal with light. *"The Seasons"* activity offers a visual representation of how the seasons work.
7. Create an emotions collage. Have the students choose three emotions to represent themselves. Choose a color of construction paper to go along with each emotion and label it with that emotion (i.e. red for angry, yellow for happy, black for depressed). Look through old magazines and cut out pictures that represent each of the chosen emotions. Talk about the different reasons people might experience these emotions. Brainstorm strategies they use to deal with each of these emotions. What works for them? What is not effective and why? Glue all three of the pieces of construction paper to a poster and display them around the room. *(A coordinating activity is in the Home Visit Notes.)*
8. Feelings, emotions and moods are associated with different types of music. Sometimes music is an activity all by itself and sometimes it is combined with another activity—for example, music for mall shoppers. Where else do you recall hearing music played? What would life be like if there was no music? Do *"The Sounds of Music"* activity. The science extension, effects of music on the brain, leads to the next two exercises listed here focusing on the brain.
9. Play some games related to mental health. Instructions are included for Brain Boggle, Brains and Neurons (Chutes and Ladders), Mental Wellness Bingo, Mental Health Pictionary, and Brain Mix-Up.
10. Construct a neuron. Several different methods are included.
11. Write some poetry. Have the students complete an "I Am" poem.
12. Have the students complete a round of *"Alike and Different"*. Give each student a picture and/or words of an object. Have each student compare the

human brain to the object at each station. Make a list of similarities and differences between their object and the human brain. For example, how is your brain like a bowl of Jell-O? How is it different? Are they both soft? Do they have layers? Can they store information? Do they use electricity? Do they contain chemicals? When finished, have the students switch objects or have them physically go to another "station" to complete the same procedure with another object. Some suggested objects: Jell-O, tape recorder, balloon, apple, camera, computer, telephones, book, and ball.

13. Distribute the *"Words of Inspiration"* quotation book. Have each student add his or her favorite quote at the end of the book. The quotations can be read if the student needs some uplifting words of encouragement.
14. Make a *"Worry Doll"*. As Guatemalan custom has it, diminutive worry dolls remove frets and worries from sleeping people who confide one concern to each doll before going to bed. There is a legend amongst the Highland Indian villages of Guatemala: "If you have a problem, then share it with a worry doll. Before going to bed, tell one worry to each doll, then place them beneath your pillow. Whilst you sleep, the dolls will take your worries away!" (*This activity is repeated in the Home Visit Notes.*)
15. Create a *"Warm & Fuzzy Feeling"* box (positive thoughts). Bring in shoeboxes, oatmeal containers, coffee cans, etc. Have each student pick a container, cover it with felt or paper, and decorate it with glitter, beads, yarn, or other items to make it uniquely theirs. Have each member of the class write down something that is special about each student and place all of the sentiments in the positive thoughts box. The instructor can add his or her own special thoughts. Encourage the students to tell their family members to add special thoughts to the box. This is not a one time project. It should be an ongoing project with positive thoughts added often and reviewed periodically to reinforce the student's self-worth. (A similar activity is included in the home visit notes.)
16. **ESL activity.** For students who might not have enough command of English to have a discussion about emotions, try drawing pictures of different emotions using the "Chalk Talks" method to help students master the meanings. Some examples are included. (Chalk Talks is also the name of a book by Norma Shapiro and Carol Genser. Contact Command Performance Language Institute at (510) 524-1191 for more information.)
17. Connect the dots. This activity gives the students a good visual for how complex the brain and its connections are.

18. Read *"I am an Architect of my Life"* so that students know they are in charge of their own lives. Have the students write their own *"If I Were in Charge of the World"* poem. Collect all the poems and bind them together for a class book. Distribute copies to all the students.
19. Play the *"Special Candy Game"*. This was designed as an **ESL activity** but it can also be used in a GED/ABE class to reinforce the fact that every student is special. Students (and instructors) need to be reminded that they are special in order to maintain mental wellness.
20. Do the *"What Do Your Feelings Weigh?"* activity. Use the folk tale, *"A Heavy Sack"* (handout) to reinforce this activity.
21. What do positive and negative integers have to do with emotions? Do the activity to find out. Follow up with the positive and negative card game.
22. When we go beyond duties that are expected of us and reach out to help another person or group of people, we are performing a Random Act of Kindness. Read the handout for classroom ideas that teach across the curriculum. **(ESL Activities included)**
23. Communication can be an important element in maintaining mental health. What are all the ways we communicate? Have the class write down as many terms as they can think of for the word communicate. Complete the *"Communication Activities"* handout. **(ESL Activities included)**
24. Drugs can affect our brain. One common drug is caffeine which is found in soft drinks and coffee. Coca-Cola first went on sale in 1886. Dr. John Pemberton sold only 25 gallons in the first year. His drink was made from syrup, caffeine from the cola nut, and a tincture of cola leaves. He didn't have enough money to market the drink and finally sold his shares in the company. Asa Chandler bought the formula for Coca-Cola and turned the company into a booming business. Today over 150,000,000 drinks are consumed each day! Chandler was successful using signs, posters, cards, coasters, etc. to market Coca-Cola. As teams, invent a new food product and create an advertisement for the new food that will be shown during the next Super Bowl game.

**"Positive thinking will let you use the abilities,
training and experience you have."**

--Zig Ziglar

Mental Spring Cleaning

Purpose: To help student's understand they have control over their lives. This activity will demonstrate that they have control over which of those aspects they choose to concentrate.

Materials:

- Sheet of paper
- Pen or pencil

Procedure:

1. Have each student take out a full sheet of paper and write the most negative thing in their life. They are not to put their names on the paper. They put their paper in their hands and then put their hands high over their heads.
2. Tell the students to crumple the paper into a large ball and throw it at the instructor. After the toss, have the students look around the room at the faces of their classmates (there probably won't be a somber face in the group).
3. The ensuing discussion focuses on how their moods changed from concentration on the most negative thing in their life to concentration on how much fun it was to throw something at a teacher. From this idea discuss with the class how each of us has a choice of whether we concentrate on those things that are negative or those things in our life that are positive. We can change how we feel at anytime by changing what we focus our attention on.
4. Next have the students write down a positive characteristic about themselves. Have them fold up that piece of paper and keep it in a pocket or purse. Tell them to pull it out and look at it every time they feel that negative thought entering their mind.

Extension Ideas:

- Ask students to write an essay (or discuss in class) the difference in how they felt when they were writing and when they crumpled up the paper and threw it at the instructor. Have them list other things they might concentrate on in their lives that will help them to concentrate on positive feelings.
- Give each student 5 dried beans. Ask them to examine the beans and choose the "Best" bean. Don't give them any other information.

Activity # 1 (Page 2 of 2)

- Have some or all of the students explain how they chose their "Best" bean.
- Relate the beans to people by asking the following questions:
 - a. Are all of your beans the same on the inside?
 - b. Are all people the same on the inside?
 - c. When we eat the beans, so all the beans taste the same?
 - d. Imagine you are hanging off a cliff and are desperately clinging to a few blades of grass that are pulling loose from the ground. Suddenly, a hand appears from above to rescue you. Would you wait to see what that person looked like before you reached for help?
 - e. Is one bean better than another? Is one person better than another?
- Discuss the self-esteem of Miss Piggy from Sesame Street.
 - a. How does Miss Piggy feel about herself?
 - b. What are some of her flaws?
 - c. Why do we like Miss Piggy?
 - d. How would Miss Piggy act if she didn't have a high self-esteem?
 - e. Would the Miss Piggy character be as interesting if she had a low self-esteem? Why?
- Have students write a paragraph on how they can raise the self-esteem of others. Read several aloud.
- Break students into groups and role play the following situations:
 - a parent makes hurtful statements to a child which would cause low self-esteem
 - the appearance of a person with low self-esteem
 - the appearance of a person with high self-esteem
 - friends encouraging a person who has low self-esteem
 - a person with low self-esteem and a person with high self-esteem applying for the same job
- Brainstorm what influences their feelings about themselves. (Parents, Family, TV, Magazines, etc.) Define self-esteem. Ask the class to brainstorm causes for low self-esteem. After they have made suggestions, ask them when self-esteem begins to form. Finally, have students write a paragraph explaining this statement. "You can't love others until you love yourself."

Mental Wellness Pictionary

This activity targets the kinesthetic learning style and promotes necessary soft skills such as teamwork and communication.

Materials:

- Chalk board, marker board or flip chart
- Chalk or markers
- Pieces of paper or 3" X 5" cards
- Timer or stopwatch
- Box or bag to place the word cards

Procedure:

1. Write concepts or vocabulary words from the topic of mental wellness onto cards and place in the box or bag. Some examples are given to get you started.
2. Divide the class into two teams.
3. Have the students number off. The numbers will represent the order in which they will each be the "drawer".
4. Have the first "drawer" select a word from the box. He/she looks at the word without anyone else seeing it and decides if the team will keep the word or pass it to the other team. If the word is passed, hand it to the first "drawer" on the other team. Students should keep in mind that by passing the word to the other team, they are passing their turn. However, one reason a "drawer" may pass a word would be he/she thinks the word is too hard to be communicated. He/she thinks the other team will not be able to guess the answer and then his/her team can "steal" the points back.
5. If the word is kept, set the timer for two minutes.
6. Using only pictures (no words, letters, or numbers) the "drawer" makes pictures or symbols that will help his/her teammates understand what the word is. Teammates may yell out guesses during the two minute period. The "drawer" may use hand gestures to indicate if the teammates are on the right track or not. THE "DRAWER" MAY NOT TALK DURING THE TWO MINUTES!
7. If the team guesses the word, they receive 50 points. If they do not guess the word before the two minutes are up, the other team receives 25 points. However, if the other team can come up with the answer, they will receive an additional 25 points (for a total of 50 points). *Instructor note: By awarding an additional 25 points for the second team if they guess the word, it increases attention and participation.*
8. Play continues until a predetermined number of points (200 or 500 for example) is reached by one team. It can also be played for a set period of time (30 or 45 minutes).

Alternative: Have the entire class play as one team. Students take turns picking out a word to draw. There is no “pass” option in this alternative and points do not need to be kept. “Drawers” must remain silent. When someone guesses the action, write the word on the board. The student that guessed the word selects the next word and becomes the “drawer”. Repeat the game until all of the words have been identified correctly.

NEURONS	MOOD
PLANNING (GOAL SETTING)	RELAX
LIGHTHEARTED	ANXIETY

THINKING	PROBLEM SOLVING
EMOTIONS	BALANCE
NUTRITION	LAUGHTER
FRIENDS	COMMUNICATION

Create a Neuron

The brain is made up of billions of individual nerve cells (neurons). Students will learn about the structure of a neuron by constructing a model.

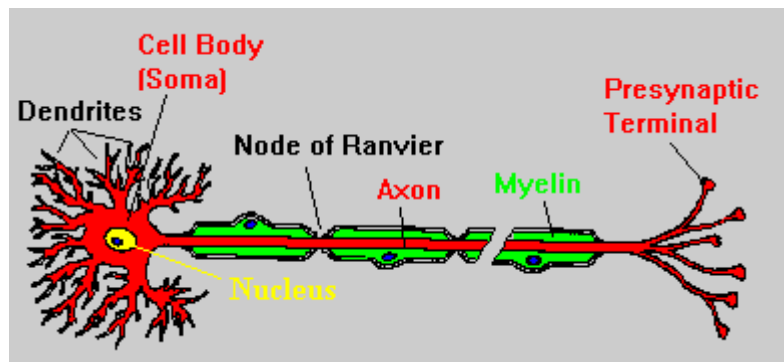
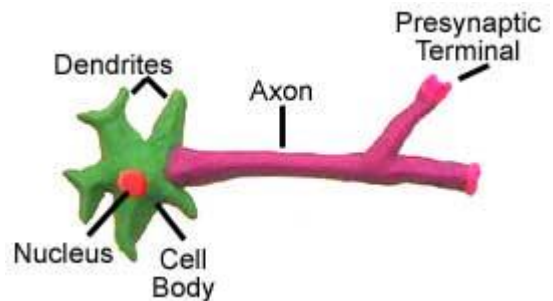
Materials:

- Playdough or modeling clay. Provide about a golf ball-sized amount of each of 4 different colors.

Background

Introduction: The brain is made up of about 100 billion nerve cells (also called "neurons"). A neuron has 4 basic parts: the dendrites, the cell body (also called the "soma"), the axon and the axon terminal.

- **Dendrites** - Extensions from the neuron cell body that take information to the cell body. Dendrites usually branch close to the cell body.
- **Cell body** (soma) - the part of the cell that contains the nucleus.
- **Axon** - the extension from the neuron cell body that takes information away from the cell body. A single axon projects out of the cell body.
- **Axon terminal** - end part of an axon that makes a synaptic contact with another cell.



Procedure:

- Divide the class into teams.
- Give students 4 different colors of modeling clay or playdough. Have them build a model of a neuron using different colored clay to indicate different structures.

Neuron in a Bag

Here is an activity for an edible neuron. Neurons are the oldest and longest cells in the body! You have many of the same neurons for your whole life. Although other cells die and are replaced, many neurons are never replaced when they die. In fact, you have fewer neurons when you are old compared to when you are young. Neurons can be quite large – some neurons can be several feet long!

Materials:

- Jell-O - any flavor
- Sandwich size Ziploc plastic bags
- Canned fruit
- Candies
- *What's Inside of a Neuron?* handout

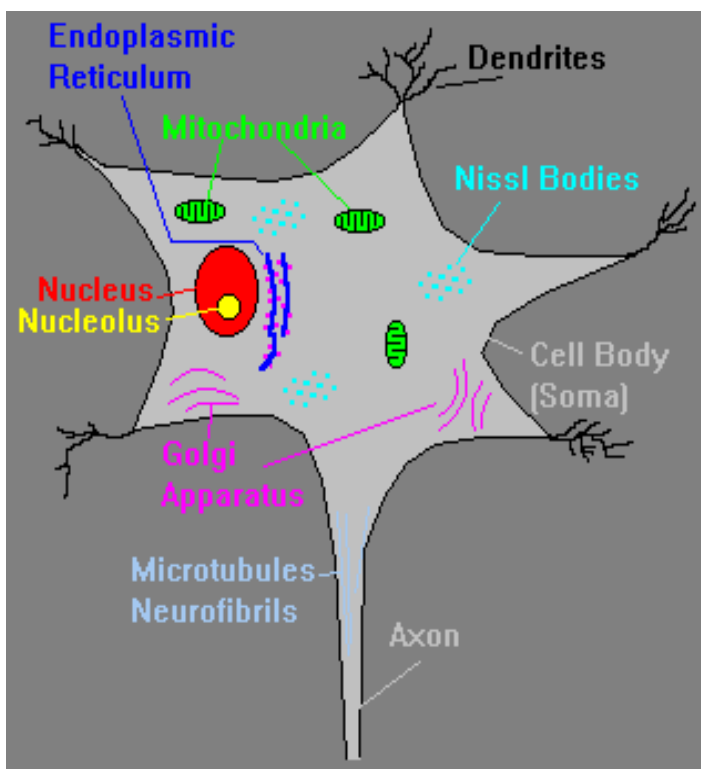
Procedure:

1. Mix one box of Jell-O with water by following the directions on the Jell-O box. After the Jell-O has cooled to a warm temperature, pour it into small plastic bags.
2. Add fruits (canned fruit cocktail works well) and candies to the Jell-O to represent the organelles you would find inside of a neuron. For example, mandarin orange slices could be mitochondria; a cherry half could be the nucleus; red and black string licorice could be microtubules and neurofilaments. The plastic bag can represent the cell membrane. Don't forget ribosomes, the golgi apparatus and endoplasmic reticulum. Be sure to make a "legend" of your cell so you remember which food represents which organelle. Write your legend on some card stock or index card.
3. After all the "organelles" have been added, close the bag and place the "cell" in the refrigerator.
4. When the Jell-O gets firm, take it out, and compare your neuron to other neurons.
5. Have a snack...a neuron snack.

Happy 105th Birthday to the Golgi apparatus! In 1898, the famous neuroanatomist Camillo Golgi reported that he discovered a ribbon-like apparatus inside neurons of the cerebellum. This structure now bears his name as the "Golgi apparatus."

What's Inside of a Neuron?

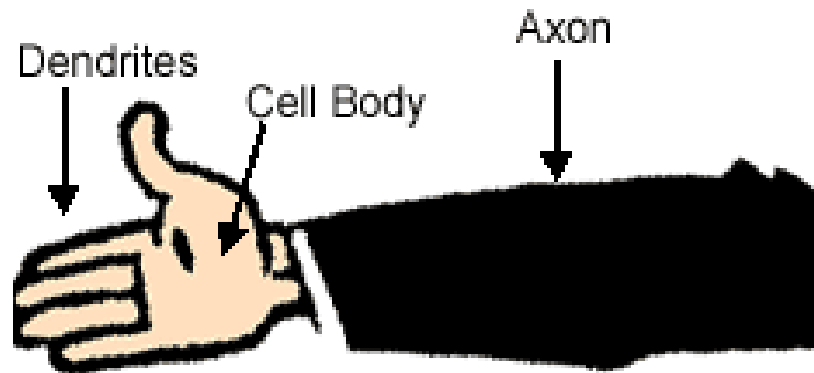
A neuron has many of the same "organelles," such as mitochondria, cytoplasm and a nucleus, as other cells in the body.



- **Nucleus** - contains genetic material (chromosomes) including information for cell development and synthesis of proteins necessary for cell maintenance and survival. Covered by a membrane.
- **Nucleolus** - produces ribosomes necessary for translation of genetic information into proteins.
- **Nissl Bodies** - groups of ribosomes used for protein synthesis.
- **Endoplasmic reticulum (ER)** - system of tubes for transport of materials within cytoplasm. Can have ribosomes (rough ER) or no ribosomes (smooth ER). With ribosomes, the ER is important for protein synthesis.
- **Golgi Apparatus** - membrane-bound structure important in packaging peptides and proteins (including neurotransmitters) into vesicles.
- **Microfilaments/Neurotubules** - system of transport for materials within a neuron and may be used for structural support.
- **Mitochondria** - produce energy to fuel cellular activities.

Simple Neuron Model

This is probably the simplest model of a neuron you can get. ...and you don't need any supplies. It's your hand! Hold out your arm and spread your fingers. Your hand represents the "cell body" (also called the "soma"); your fingers represent "dendrites" bringing information to the cell body; your arm represents the "axon" taking information away from the cell body.



Activity # 17

Connect the Dots

This exercise is to illustrate the complexity of the connections of the brain.

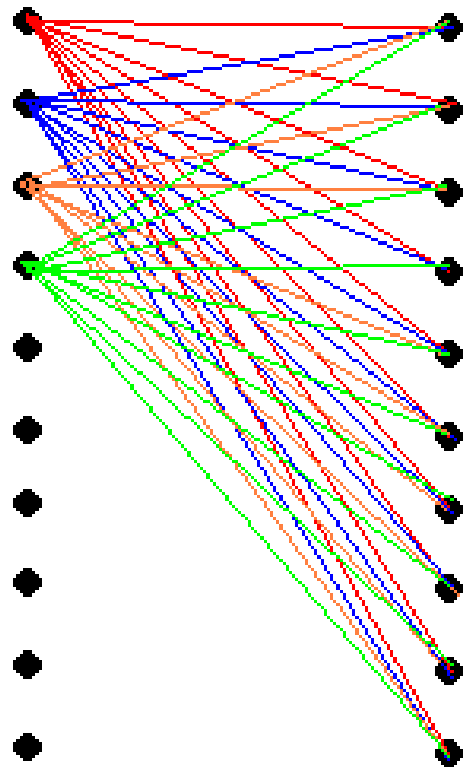
Materials:

- Pencil, pens, markers
- Paper

Procedure:

1. Draw 10 dots on one side of a piece of paper and 10 dots on the other side of the paper. Assume these dots represent neurons, and assume that each neuron makes connections with the 10 dots on the other side of the paper.
2. Connect each dot on one side with the 10 dots on the other side. As you can see from the diagram below, it gets very complicated after a while. And only 4 "neurons" are connected.

Remember that this is quite a simplification. Each neuron (dot) may actually make *thousands* of connections with other neurons. If you tried this your paper would be really messy!!



Architect of My Life

I am the architect of my life. I may change myself at any time, I may choose a different path. I become what I allow to affect me. It is my decision to respond to and receive experience.

It is my perception that shapes my reality. At any time I may change my perception and my reality will become new. I may build a new foundation of values; I may decide at any moment of my existence to accept or refuse a standard of living.

I may create new aspects of my personality and it will become me because I decided so. I am the fullest potential that I accept for myself. The most awesome power that I yield is the ability to change everything that defines who I am by erasing what is now and writing a new story.

The story of my life will be written by my choices and the ending is as much as I can imagine. I am every decision that I accept as my own.

Understand. I am the architect of my life.

Shane L. Durbec

Activity # 11

“I Am” Poems **A poem by you, about you, and to introduce you**

FORMAT:

1st Stanza:

I am (two special characteristics you have)
I wonder (something you are actually curious about)
I hear (an imaginary sound)
I see (an imaginary sight)
I want (an actual desire)
I am (the first line of the poem repeated)

2nd Stanza:

I pretend (something you actually pretend to do)
I feel (a feeling about something imaginary)
I touch (an imaginary touch)
I worry (something that really bothers you)
I cry (something that makes you very sad)
I am (the first line of the poem repeated)

3rd Stanza:

I understand (something you know is true)
I say (something you believe in)
I dream (something you actually dream about)
I try (something you really make an effort about)
I hope (something you actually hope for)
I am (the first line of the poem repeated)

SAMPLE:

I AM

I am a teacher and a student.
I wonder if I can make a difference in my students.
I hear their minds churning.
I see the lights of understanding come on.
I want all of my students to leave my class better people for having been in my class.
I am a teacher and a student.

I pretend I exercise on a regular basis.
I feel the time slipping through my fingers.
I touch the minds of as many students as possible.
I worry that I will not succeed in meeting everyone's needs.
I cry when I see a student who has given up and refuses to try.
I am a teacher and a student.

I understand that I am always learning and always teaching.
I say never give up on a child; never give up on me.
I dream of being the one who makes a difference in your life.
I try to believe in myself and all students at all times.
I hope to be a positive role model for all whose lives I touch.
I am a teacher and a student.

Steps to Success

1. Surround yourself with positive supportive people. Clear away people in your life that drain your emotional energy and surround yourself with those who give you spark and joie de vivre.
2. Understand what makes you special and unique, then share it with the world!
3. Create a vision of what you want, then take steps to achieve it. Be in action, not just in your mind, but really in action towards getting the things in your life that you want.
4. Choose to follow your heart. Learn to stop listening to your head and switch to hearing what your heart has to say.
5. Enjoy what you do, and do what you enjoy. Life is too short to do anything but...
6. Take time for yourself. You can't give to others if your glass is empty. Fill it regularly with time for yourself.
7. Learn to love life as it happens, not as you would have it happen. Expectations about how life should be will always be disappointing.
8. Smile and share your smile with all you meet!

Adapted from: www.chillout.to

Positive Steps



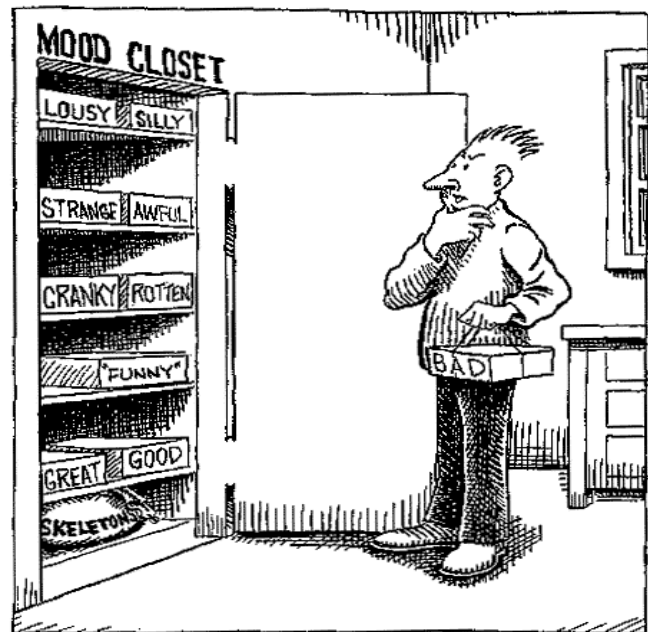
Mood Disorders

Mood disorders may be triggered by many conditions. Light deprivation has been suggested as a cause of seasonal mood swings which may vary from winter doldrums to Seasonal Affective Disorder, a serious but atypical form of depression. The decrease in bright light exposure starting in the fall and continuing through the winter season may initiate the "hibernation response" in some mammals but it may also be associated with abnormal sleep patterns, hormonal changes, lack of energy and weight gain in up to 20% of humans. These symptoms gradually disappear with increasing bright light exposure in the spring.

The theory behind the seasonal mood changes is felt to be alterations in the levels of either hormones (possibly melatonin) or neurotransmitters (serotonin).

Melatonin, a substance produced by the brain, is linked to our sleep cycle. High levels of melatonin are associated with falling sleep, while lower levels are found during the active period of our day. Bright light entering our eyes is felt to stimulate the retina, creating a neural response that informs the pineal gland to decrease melatonin secretion. Once the bright light stimulation is

removed, the production of melatonin resumes and the body enters a restful or sleep state. Research has indicated that intensity, duration and timing of light exposure are important variables in this process. The brighter the light, the less time is needed for the suppression effect on melatonin secretion. Research indicates that serotonin may also play an important role in SAD. It is well known that serotonin levels correlate with mood. Lower levels are often associated with depression. Antidepressants, possibly by increasing the levels of this neurotransmitter, produce clinical improvement of various depressive conditions. Light of sufficient strength and of the proper frequency may increase serotonin levels by a mechanism that has not yet been fully understood.



Exposure to bright light in the morning works better than evening exposure for reducing the symptoms associated with light deprivation. Adjusting our circadian rhythm (the 24 hour wake/sleep cycle) to correlate more with spring and summer patterns improves restful sleep, increases productivity while awake and stabilizes hormonal production. Since the incidence of this condition is highest in young, menstruating women, creating a normal hormonal balance lessens PMS symptoms and weight gain.

Turning on indoor lights will not produce enough light intensity to influence clinical improvement of the medical conditions previously mentioned. A light intensity of greater than 2500 lux is necessary to reach the sunlight intensity level found during spring and summer daylight hours. To be effective, commercially available light sources must use fluorescent bulbs capable of generating more than 2500 lux with a specific light wavelength and a diffusing screen to filter out harmful U.V. rays.

Exposure times may vary from 30 minutes to 2 hours. No retinal damage has been reported in short term studies with bright light treatment but further studies are needed to determine if long range damage may occur. Using a visor as a low level light source revealed a 20% incidence of side effects, such as headache, eyestrain and a "wired" feeling. Since depression in any form may be serious, seek out medical advice before embarking on any treatment. Not everyone will respond the same way to light stimulation, so be sure to have professional guidance.

Source:

Peter A. Emsinger, 2001, *Life under the Sun*, Yale U. Press, New Haven
http://www.discover.com/july_99/featmind.html

Special Candy Game

This activity will allow students to get to know each other and to have each member of the group think about things that are special and unique about themselves. Students will also discover that they have many things in common with others in the group. Unique qualities are what help us maintain our mental wellness. ESL will find things they have in common even though they may be from different countries.

Materials: 10 pieces of small wrapped candy for each participant

Procedure:

- I have participants sit in a circle
- Give each person 10 pieces of wrapped candy
- Go around the circle and have each person name one thing in their life that they think is special or some talent or ability that they possess
- As each person says what they want to say, the other members of the group throw that person a piece of candy if that is not something that they have in common with that individual

Example: I say, "I can play the piano." If you can also play the piano you do nothing, but if you cannot play the piano you throw me a piece of candy

- You should try to encourage the members of the group who are having a hard time thinking of something, as there should hopefully always be something to find in a persons life that is good
- The game should end at a point where all members have the same amount of candy again or at least where everyone has some so that no one feels left out.

What Do Your Feelings Weigh?

In order to maintain mental wellness, it is important for students to identify and manage feelings they have. If they do not have a way to deal with their feelings, the emotions can become overwhelming and interfere with their lives.

Materials:

- Construction paper
- Cans of food of varying weights
- Glue or tape
- Markers

Procedure:

1. Prior to class cover the label on food cans with different color construction paper.
2. Have the students as a group come up with a list of negative emotions, such as mad, angry, worried, sad, frustrated, etc. Write these emotions on the food cans, one emotion per can.
3. Ask for one student volunteer. This person is the bag carrier.
4. Have the student pack all of the “negative emotions” (cans) into a backpack or pillowcase.
5. The student has to carry the bag around with him or her.
6. Ask the student if he or she wants to “get rid of” some of the negative emotions. As a class, discuss ways of dealing with each negative emotion. For every solution, take out a block from the pillowcase or backpack.
7. At the end, there should be no cans left in the bag.

Discussion: The bag represents us, and the cans represent our negative emotions. Every time we have a negative emotion, we have an emotional weight inside our body. Just as the blocks weigh down the bag, the negative emotions weigh down our mental health. Talk about the importance of learning ways to deal with our negative emotions so that we lessen the emotional weight on ourselves. Do you think it’s important to think positively about ourselves? Can you think of new strategies for replacing negative emotions with more positive ones?

Note: Also included in this packet is a folk tale, *A Heavy Sack*. Use this to introduce this lesson or to reinforce it.

A Heavy Sack

An old tale tells of a man with a sack on his back. Every time someone does something unkind to him or does something he doesn't like, he picks up a stone and places it in his sack. Soon his sack is very heavy from his load of rocks. It weighs him down and makes it difficult for him to do any of the activities he used to enjoy or even to spend time with anyone he loves.

After some time, he happened upon a wise old woman. He stopped and begged her, "Wise old woman, tell me how I can again have fun and enjoy my life. For my heavy load is so great that I no longer find pleasure in anything. All I have time to do is carry the load."

The wise old woman smiled and shook her head. "Foolish man, do you not think if you empty your sack you will be able to enjoy life once more?"

The thought was indeed amazing to the man. He had not considered that he could let go of any of the rocks on his back. "But how do I do this great thing? If I let go of any of the rocks, then I will no longer remember the injustice that has been done to me."

The old woman smiled and said, "This is precisely the point. If you hold on to your past hurts, they will prevent you from being able to enjoy your future. It is in the letting go that allows you to go on. "

Light

Light travels in waves. Light is a wave of energy, and the different colors of light have different levels of energy. Light waves travel in a straight line and can be either reflected or absorbed by materials they run into. Light waves are refracted, or bent, when they run into certain substances, such as water.

A spectrum of colors

Sunlight contains all the colors of the rainbow blended together to make white light. These colors are red, orange, yellow, green, blue, and indigo, and violet. However, when sunlight shines on different things, not all colors are reflected equally. Some things, like grass, appear green to us because only the green light is reflected to our eyes. The other colors are absorbed by the grass. Colors are only visible when light shines on objects.

Exercise # 1

Try this exercise to show how water drops can bend white light and break it into different colors.

RAINBOW ALERT! The fine spray made by lawn sprinklers, mist from waterfalls, and the sun shining on a layer of rain can all cause rainbows. How many colors can you see in a rainbow? If you are lucky enough to see the sun reflect on two layers of rain, you may see a double rainbow.

Materials:

- Shallow pan
- Water
- Mirror
- White paper

Procedure:

1. Fill a pan with water and place it on table right in front of a sunny window.
2. Put a small mirror in the water at the end of the pan. Slant the mirror so that it is facing the window.
3. Hold a sheet of white paper between the window and the pan of water. Slowly tilt the mirror back and forth to catch the light at different angles as it passes through the water and hits the mirror. The light will reflect from the mirror and pass through the water. As it passes through the water, it will bend. If you angle the mirror in just the right way, the light will bend enough to make a rainbow that will show up on the paper. Be patient and keep trying; sometimes it can take a while.

Exercise # 2

By spinning black and white circles you will be able to see different colors. The instructor may want to do a brief review about fractions before beginning this exercise.

Materials:

- White paper
- Pencil
- Ruler
- Scissors
- Black paper
- Glue
- Marker
- Tape
- Knitting needle
- Paper plate

Procedure:

1. Draw and cut out three circles of white paper that are each 5 ½ inches in diameter.
2. Put a small hole in the center of each circle.
3. Draw and cut out a circle of black paper that is 5 ½ inches in diameter. Cut the circle in half. Cut one of the halves in half again.
4. Make several disks by gluing a black half-circle onto a white circle so that the disk is half black and half white. Glue a black quarter-circle onto a white circle so that the disk is one-quarter black and three-quarters white. Using a black marker, divide one white disk into eight pie-wedge shapes. Color some of the pie wedges black, leaving others white.
5. Wrap some tape around the middle of a knitting needle. Put the knitting needle through the middle of a 6-inch paper plate, and push the plate down to rest on the tape.
6. Spin the plate. Be sure it spins smoothly and doesn't wobble. Use this as your spinner.
7. Poke the knitting needle through the hole in the center of one disk, and let the disk rest on the paper plate. Spin the plate, and look at the disk as it spins. What color do you see? Do you see different colors when the disk is spinning quickly or slowly?
8. Spin the other disks to see what colors they produce.

Exercise # 3

Materials:

- Three different brands of black felt-tip markers (washable)
- Coffee filter
- Scissors

Activity # 6 (Page 15 of 16)

- Water
- Clear plastic cup
- Pencil
- Tape

Procedure:

1. Cut a 2 inch wide strip out of the center of the coffee filter. Tape the strip to a pencil, and lay the pencil across the rim of the glass so the strip hangs into the glass. Cut the strip so that the bottom of it just touches the bottom of the glass as it hangs from the pencil.
2. Draw a line width wise with the black marker about 1 ½ inches from the free end of the strip.
3. Pour 1 inch of water into the cup.
4. Set the pencil on the top of the glass so that the coffee filter is in the water and the black line is above the water.
5. Watch as the water wicks up the coffee filter.
6. What happened to the black line?
7. Repeat the procedure with the other two markers.

What happened?

The color in the marker's ink was created by combining several other colors. As the water wicks up the coffee filter strip, it took some of the ink with it. It carried the different colors different distances, so they appeared in layers on the paper towel above the black line. Each brand of marker has a unique color pattern or "color fingerprint".

Exercise # 4

Objects reflect light differently depending on what color they are and what material they are made of.

Materials:

- Four re-sealable plastic storage bags
- Water
- White, orange, and black construction paper
- Aluminum foil
- Thermometer
- Pen and paper

Procedure:

1. Fill four storage bags with tap water and seal them tightly.
2. Place the bags in a sunny spot where they will not be disturbed.

3. Wrap one bag in a sheet of white construction paper, one in a sheet of orange construction paper, and one in a sheet of black construction paper, and the last one in a sheet of aluminum foil.
4. Predict what effect the different wrappings will have on how the sun's energy heats the water in each bag. Record your predictions on the worksheet. Write a "W" in the row of the bag you think will have the warmest water. Write a "C" in the row of the bag you think will have the coolest water.
5. Using a thermometer, measure the temperature of the water in each bag after an hour.

Bag	Temperature of water after an hour	Prediction Warmest/Coollest	Actual Warmest/Coollest
White paper			
Orange paper			
Black paper			
Aluminum foil			

Were your predictions correct? Why or why not? _____

Math Extension: Create a graph of this information.

Activity # 14

Guatemalan Worry Dolls

There is a legend amongst the Highland Indian villages of Guatemala: "If you have a problem, then share it with a worry doll. Before going to bed, tell one worry to each doll, then place them beneath your pillow. Whilst you sleep, the dolls will take your worries away!"

Materials:

- Toothpicks
- Embroidery floss
- Glue

Procedure:

1. Start by trimming the tips off of toothpicks. Tie two of them together with the third one tied horizontally as arms.
2. Wind embroidery floss around the top of the toothpicks to form a head.
3. Wrap more lengths of colorful embroidery floss around the toothpick body to create a shirt, pants, skirt, or dress. Add a dab of glue to the end of each thread or wrap each new thread over the end of the last one to hold it in place.
4. Glue on snippets of floss for hair or create a separate wig and then glue it on.



Social Studies Extension: Find Guatemala on the map/globe. Use the following questions as a beginning point for a discussion:

1. What continent is Guatemala on?
2. What direction is it from us?
3. About how far away is it from the U.S.?
4. What is the climate like in that part of the world?
5. Research the Guatemalan flag. Create a flag. What does it stand for? How does it compare to our flag?

Stress Pillow

Instead of or in addition to the Worry Doll, Stress Pillows can be made. Using fabric crayons or paints have students decorate a 6 "X 6" piece of white fabric entitled "**Squeeze me, I'm stressed**". Using a blanket stitch, students can then sew this piece to another 6 "X 6" fabric, leaving an opening for stuffing. (If the students do not feel comfortable sewing, no-stitch fabric glue can accomplish the task.) Students then stuff the pillow with fiber fill, stitch the opening closed, and ta-da they have a Stress Pillow that can be squeezed anytime they feel stressed.

Positive and Negative Integers/ Positive and Negative Thoughts

Objective:

- Introduce the concept of positive and negative integers
- Comprehend the power and influence of thoughts in how one perceives oneself

Materials:

- Red beans (or some other same colored objects)
- Navy beans (or some other same colored objects)
- Cups

Procedure:

Introduce positive and negative integers with a coordinated unit on positive and negative thoughts.

1. Use different colored chips, beans, or pieces of colored paper to represent positive thoughts and negative thoughts (red beans stand for negative and navy beans stand for positive or some variation of this).
2. Ask students to take a cup and some of each of the different colored beans.
3. Have them try thinking of what's good about them. For each positive thought they put one navy bean in the cup.
4. Then ask them what they worry about or don't like. For each negative thought, they put in a red bean.
5. Next they dump out the beans and match up red beans and navy beans.
6. Show them how they cancel out each other in value (a positive + a negative = 0).
7. See if they end up with more negative or positive beans.
8. This can be the beginning of a discussion on positive and negative integers and their values. It can also lead to a discussion on the power and influence of thoughts in how we perceive ourselves.

Continue to reinforce positive and negative integers by the card game on the following page.

Positive and Negative Integers: A Card Game

This adaptation of the card game Twenty-Five provides practice adding and subtracting positive and negative integers.

Objectives

Practice addition and subtraction of positive and negative integers.

Materials

- standard deck(s) of cards

Procedure

1. Arrange students into groups of two or more. Have students deal out as many cards as possible from a deck of cards, so that each student has an equal number of cards. Put aside any extra cards.
2. Explain to students that every black card in their pile represents a positive number. Every red cards represents a negative number. In other words a black seven is worth +7 (seven), a red three is worth -3 (negative 3).

Note: If this game is new to students, you might want to discard the face cards prior to dealing. If students are familiar with the game, or if you want to provide an extra challenge, leave the aces and face cards in the deck. In that case, explain to students that aces have a value of 1, jacks have a value of 11, queens have a value of 12, and kings have a value of 13.

3. At the start of the game, have each player place his or her cards in a stack, face down. Then ask the player to the right of the dealer to turn up one card and say the number on the card.

For example, if the player turns up a black eight, he or she says "8".

4. Continue from one player to the next in a clockwise direction. The second player turns up a card, adds it to the first card, and says the sum of the two cards aloud.

For example, if the card is a red 9, which has a value of -9, the player says " $8 + (-9) = (-1)$ "

5. The next player takes the top card from his or her pile, adds it to the first two cards, and says the sum.

For example, if the card is a black 2, which has a value of +2, the player says " $(-1) + 2 = 1$."

6. The game continues until someone shows a card that, when added to the stack, results in a sum of exactly 25.

Are You SAD?

What is SAD?

Throughout the centuries, poets have described a sense of sadness, loss and lethargy which can accompany the shortening days of fall and winter. Many cultures and religions have winter festivals associated with candles or fire. Many of us notice tiredness, a bit of weight gain, difficulty getting out of bed and bouts of "the blues" as fall turns to winter.

However some people experience an exaggerated form of these symptoms. Their depression and lack of energy become debilitating. Work and relationships suffer. This condition, known as Seasonal Affective Disorder (SAD) may affect over 10 million Americans. SAD may be related to changes in the amount of daylight during different times of the year.

Typical symptoms of SAD include:

- A change in appetite, especially a craving for sweet or starchy foods
- Weight gain
- A heavy feeling in the arms or legs
- A drop in energy level
- Fatigue
- A tendency to oversleep
- Difficulty concentrating
- Irritability
- Increased sensitivity to social rejection
- Avoidance of social situations

Symptoms begin in the fall, peak in the winter and usually resolve in the spring. Some individuals experience great bursts of energy and creativity in the spring or early summer. Susceptible individuals who work in buildings without windows may experience SAD-type symptoms at any time of year. Some people with SAD have mild or occasionally severe periods of mania during the spring or summer. If the symptoms are mild, no treatment may be necessary. If they are problematic, then a mood stabilizer such as Lithium might be considered. There is a smaller group of individuals who suffer from summer depression.

The American Psychiatric Association says SAD is a subtype of major depression. The classic major depression involves decreased appetite, decreased sleep, and often, poor appetite and weight loss. It has long been recognized that some depressed individuals had a "atypical depression" with increased sleep and appetite along with decreased energy. Some, but not all of these atypical individuals also had a seasonal pattern. Some people with winter depression also have mild or occasionally severe

manic mood swings in the spring and summer. If these episodes are severe, the individual might be diagnosed with Bipolar Disorder. (formerly called manic depressive illness)

Epidemiology of SAD

Epidemiology—a branch of medical science that deals with the incidence, distribution, and control of disease in a population.

About 70-80% of those with SAD are women. Although some children and teenagers get SAD, it usually doesn't start in people younger than 20 years of age. For adults, the risk of SAD decreases as they get older. SAD is more common in northern geographic regions. For every individual with full blown SAD, there are many more with milder "Winter Blues." The incidence of SAD increases with increasing latitude up to a point, but does not continue increasing all the way to the poles. There seems to be interplay between an individual's innate vulnerability and her degree of light exposure. For instance, one person might feel fine all year in Maryland but develop SAD when she moves to Toronto. Another individual may be symptomatic in Baltimore, but have few symptoms in Miami. Some individuals who work long hours inside office buildings with few windows may experience symptoms all year round. Some very sensitive individuals may note changes in mood during long stretches of cloudy weather.

Theories about how light affects mood and sleep

In 1984, a psychiatrist named Norman Rosenthal, published a paper on the use of bright light therapy in patients with this disorder. Since then, a large number of well-designed studies have confirmed and refined these findings. Researchers are still investigating mode by which bright light can lift depression or reset a sleep cycle. One theory is that an area of the brain, near the visual pathway, the suprachiasmatic nucleus responds to light by sending out a signal to suppress the secretion of a hormone called melatonin. Brain studies suggest that there is impairment serotonin function in neurons leading to the suprachiasmatic nucleus.

Initial theories suggested a pathway from the retina to the suprachiasmatic nucleus. However some recent research indicated that bright light applied to the back of an individual's knee could shift human circadian rhythms. (Daily sleep-wake cycle) This suggests that the bloodstream, not just the neurons of the visual pathways, might mediate the biological clock.

How the Light Box is used

Before embarking on a course of light treatment, it is best to have a complete psychiatric evaluation. Sometimes a medical illness or another psychiatric condition can masquerade as depression. Discuss various treatment alternatives with your doctor. Light therapy does take time, and regular use. Like exercise, not everyone who would benefit from it will actually do it on a regular basis. Your doctor will discuss the various types of light boxes or visors available. The time spent in front of the light is related to



the intensity of the light source and the distance one sits from the light. The light devices cost about \$250 to \$500 and often are not covered by insurance

Since one of the symptoms of SAD can be difficulty awakening in the morning, some find it helpful to have the light turn on just before they are supposed to wake up. Some individuals like to use a Dawn Simulator. This is a bright light that is programmed to gradually increase its intensity such that it reaches its full intensity a set period before the individual is scheduled to awaken. Although it is less gentle, some people will put their light box beside their bed and hook it up to a timer set to turn on shortly before awakening.

Other treatments

Outdoor light, even when the sky is overcast, provides as much or more light than a light box. There has been a study showing improvement in SAD symptoms when individuals took a one-hour daily walk outside. Outside light is often brighter than the light boxes. Spending an hour outside each day can often produce beneficial results in some individuals. However, one cannot get early morning outside light in the winter. Not everyone's job will allow for an hour-long outside walk. Only highly motivated people will continue their daily walk when it rains or snows.

Daily exercise has been shown to be helpful, particularly when done outdoors. For those who tend to crave sweets during the winter, eating a balanced diet may help one's mood. Conversely, as the mood improves, craving for sweets may abate.

Psychotherapy can help the depressed individual look at her depressive assumptions and negative expectations. It can also help one identify relationship difficulties so that interpersonal mistakes might not be repeated. Research has shown that cognitive psychotherapy does help relieve depression faster and more completely than no therapy.

Some individuals continue to have a certain amount of energy fluctuation with the seasons. If one is aware of this, one can plan for it and work the expected fluctuations into one's life plans.

Side Effects

Potential side effects of light therapy are rare and most often include jitteriness, a feeling of eyestrain and headache. Light therapy, like antidepressant medications, occasionally will cause someone to switch into a manic state. There has been debate on whether there might be long term retinal effects, but none have been documented when lights with proper screening of UV wavelengths are used. Individuals taking certain medications such as Lithium, tricyclic antidepressants, and neuroleptics and individuals with conditions such as diabetes or retinal degeneration should be monitored by an ophthalmologist. Because this form of treatment is fairly new, many doctors recommend a baseline eye exam and annual monitoring.

Sleep Disorders

Humans and animals generally have innate sleep-wake cycles close to but not exactly 24 hours. They depend on the daily light-dark cycle to keep their circadian rhythms to a regular 24 hours. If a human is left in a room with no light-dark cues, he or she will gradually shift into a sleep-wake cycle that is not exactly 24 hours long. Body temperature and the secretion of the hormone melatonin follow the daily cycle. Other factors, such as work schedule can modify the sleep-wake cycle in humans. The autonomous cycle length varies at different periods in the life span. Adolescents often have an innate cycle longer than 24 hours so that they have the desire to stay up late and sleep in when it is time to get up. The innate cycle then shifts closer to 24 hours for adults, but for the elderly, the autonomous sleep-wake cycle may be shorter than 24 hours resulting in evening tiredness, sleep difficulty and waking too early.

Individuals who have more severe difficulty with the timing of their sleep-wake cycle may have either Delayed Sleep Phase Disorder (difficulty falling sleep and the urge to sleep late) or Advanced Sleep Phase Disorder (tiring too early and waking too early) Both conditions can be treated with bright light. However, the proper timing of the exposure to light and darkness is more critical than it is for SAD. In these conditions, improperly timed light and dark exposure can make the problem worse, not better.

Jet Lag and Shift Work

In the cases of jet lag or shift work, the individual does not have a disorder, but is reacting to externally induced changes in the sleep-wake cycle. Traveling west to east over three or more time zones is the most difficult shift. Large forced changes in the timing of sleep periods can lead to irritability and decreased alertness. Many people can deal with this by getting extra rest while traveling or by switching to a job with a more regular schedule. However, for those who must deal with frequent sleep timing changes, one may use a special calculator to help determine the timing for exposure to light and darkness just before and during travel or shift change. If one calculates the timing wrong, one may actually make the time phase shift worse instead of better. A travel kit can consist of a calculator, a light visor and special extra dark glasses. Some use small timed doses of Melatonin to achieve the same purpose.

Other uses of bright light therapy

There has been research using light therapy for PMS, obesity and non-seasonal depression. The results have not been as striking as the results for SAD. More research needs to be done. However, it may make sense to use light therapy as an augmentation of other depression treatments or in cases in which the individual is unable to use other forms of treatment. The study on obesity was small and needs to be repeated with a larger, more carefully selected group. The obese individuals may have lost weight because their depression was better. Individuals whose PMS was worse in the winter responded better to light therapy than individuals with PMS without a seasonal variation.

Are you SAD?

1. What are the symptoms of SAD? _____

2. When do symptoms usually occur? _____
3. Name three methods used to treat SAD? _____

4. The majority of people with SAD are woman. What percent of men suffer with SAD? _____
5. What are two other illnesses that are being treated by bright light therapy? _____

6. Light therapy is not without side effects. Name two of them.

7. According to the information in the article, who would be more likely to suffer from SAD and why? A woman who lives in New Orleans, a man who lives in Miami, or a woman who lives in Seattle, Washington.

Answer Key: 1. A change in appetite, especially a craving for sweet or starchy foods, Weight gain, a heavy feeling in the arms or legs, a drop in energy level, fatigue, a tendency to oversleep, difficulty concentrating, irritability, increased sensitivity to social rejection, avoidance of social situations. 2. Symptoms begin in the fall, peak in the winter and usually resolve in the spring. 3. Any three of the following: Light box, outside light, daily exercise, psychotherapy. 4. 20-30% of men suffer from SAD. 5. PMS, obesity, and non-seasonal depression. 6. Any two of the following: Jitteriness, a feeling of eyestrain, headache, and possible long-term retina problems. 7. Most likely a woman in Seattle would suffer from SAD because she is a woman (70-80% of cases are women) and Seattle is farther north than the other two locations.

Light and Dark

A Genuine Unsolved Mystery

On May 19, 1780, an unexplained midday darkness fell over New England. The length of time the phenomenon lasted varied depended on the location of the observer, but the accounts indicate that it was at least several hours in duration. The intensity of the darkness also varied.

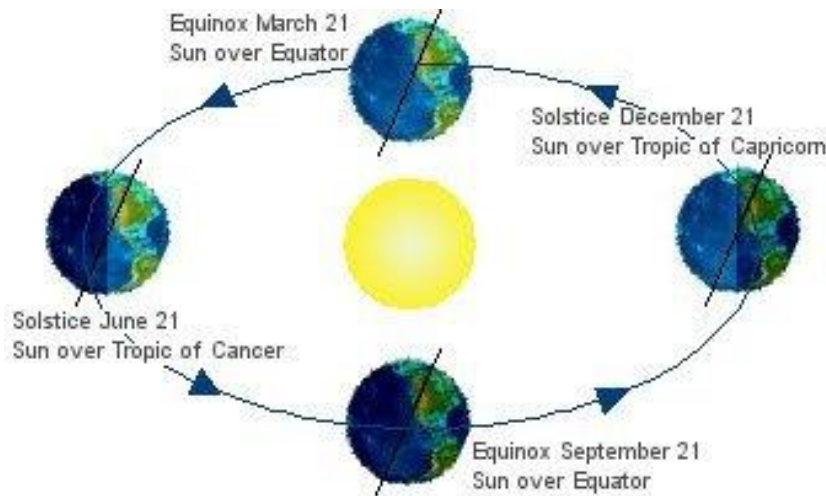
No scientific cause for the darkness was ever discovered. It was not an eclipse and if it were a volcanic ash cloud, the source has never been found. (Coincidentally, two hundred years minus one day after the Dark Day, Mount St. Helens erupted, causing a similar darkness to blanket some parts of the Pacific Northwest.) Some scientists believe that the cause was a great cloud of smoke from massive forest fires west of New England, but this is still theory.

Things to think about:

- How would your day be different if you lived in a place that had near total darkness 24 hours a day? How would your feelings and mood be different? How would this question be answered by someone who is blind?
- How would agriculture be different in a climate with no light most of the time?
- Could you live on the dark side of the moon?
- Brainstorm a list of causes for the New England midday darkness. List some that could be scientifically proven and some that cannot be proven. Each student should choose the one he or she likes best and write a mystery story about the event that includes at least three major characters.
- Research places that are located in the extreme north (i.e. Finland) and close to the equator (i.e. the Bahamas). What similarities and/or differences are there between the two locations? Compare things such as rates of depression, suicide, alcoholism, and obesity. Compare the types of crops that are grown in each location. Compare the types of careers.
- Author Nathaniel Hawthorne died on May 19, 1864. Do some research about his life and read one of his books.

WHAT CAUSES THE SEASONS?

The seasons have nothing to do with how far the Earth is from the Sun. If this were the case, it would be hotter in the northern hemisphere during January as opposed to July. Instead, the seasons are caused by the Earth being tilted on its axis by 23.5 degrees. Here's how it works:



The Earth has an elliptical orbit around our Sun. This being said, the Earth is at its closest point distance wise to the Sun in January (called the *Perihelion*) and the furthest in July (the *Aphelion*). But this distance change is not great enough to cause any substantial difference in our climate. This is why the Earth's 23.5 degree tilt is all important in changing our seasons. Near June 21st, the summer solstice, the Earth is tilted such that the Sun is positioned directly over the *Tropic of Cancer* at 23.5 degrees north latitude. This situates the northern hemisphere in a more direct path of the Sun's energy. What this means is less sunlight gets scattered before reaching the ground because it has less distance to travel through the atmosphere. In addition, the high sun angle produces long days. The opposite is true in the southern hemisphere, where the low sun angle produces short days. Furthermore, a large amount of the Sun's energy is scattered before reaching the ground because the energy has to travel through more of the atmosphere. Therefore near June 21st, the southern hemisphere is having its winter solstice because it "leans" away from the Sun.

Advancing 90 days, the Earth is at the autumnal equinox on or about September 21st. As the Earth revolves around the Sun, it gets positioned such that the Sun is directly over the equator. Basically, the Sun's energy is in balance between the northern and southern hemispheres. The same holds true on the spring equinox near March 21st, as the Sun is once again directly over the equator.

Lastly, on the winter solstice near December 21st, the Sun is positioned directly over the *Tropic of Capricorn* at 23.5 degrees south latitude. The southern hemisphere is

Activity #6 (Page 10 of 16)

therefore receiving the direct sunlight, with little scattering of the sun's rays and a high sun angle producing long days. The northern hemisphere is tipped away from the Sun, producing short days and a low sun angle.

What kind of effect does the earth's tilt and subsequent seasons have on our length of daylight (defined as sunrise to sunset). Over the equator, the answer is not much. If you live on or very close to the equator, your daylight would be basically within a few minutes of 12 hours the year around. Using the northern hemisphere as a reference, the daylight would lengthen/shorten during the summer/winter moving northward from the equator. The daylight difference is subtle in the tropics, but becomes extremely large in the northern latitudes. Where we live in the mid latitudes, daylight ranges from about 15 hours around the summer solstice to near nine hours close to the winter solstice. Moving to the Arctic Circle at 66.5 degrees north latitude, the Sun never sets from early June to early July. But around the winter solstice, the daylight only lasts slightly more than two hours. There becomes a profound difference in the length of daylight heading north of the Arctic Circle. Barrow, Alaska at slightly more than 71 degrees north latitude, lies just less than 300 nautical miles north of the Arctic Circle. Barrow sees two months of total darkness, as the Sun never rises for about a month on each side of the winter solstice. On the other hand, Barrow also has total light from mid May to early August. And what about the North Pole, or 90 degrees north latitude? The Sun rises in the early evening near the spring equinox and never sets again until just after the autumnal equinox, or six months of light. Conversely, after the Sun sets in the mid morning just after the autumnal equinox, it will not be seen again until the following spring equinox, equating to six months of darkness.

The Seasons

Demonstrate that seasons exist because of the tilt of the earth and its impact on the intensity of the sunlight at a given location.

Materials:

- globe
- flashlight
- circle cut from black paper (approx. 8 inches in diameter)
- figure of a person cut-out of purple paper
- figure of a person cut-out of pink paper
- tape

Procedure:

1. Ask for one volunteer to hold the globe and play the part of the earth (Atlas). Ask another volunteer to hold the flashlight and play the part of the sun (Helios, the god of the sun). The rest of the class should sit to one side so that they can clearly see Atlas and Helios at the same time. Have Atlas hold the earth straight up and down (instructor may assist). Now ask two more volunteers to tape the purple and pink person to the globe. The purple person should be taped midway between the equator and the North Pole. The pink person should be taped midway between the equator and the South Pole.
2. Have Atlas and Helios demonstrate how the earth goes around the sun. (Atlas walks around Helios while Helios keeps the flashlight pointed straight at the earth.) The two should stand no further than 5-7 feet apart. Have Atlas stop when the purple person can see the sun. Ask Atlas if he/she can tilt the earth so that the sun is directly overhead of the purple person in the north. The rest of the class can help Atlas. Ask: "Is the sun bright or more direct for the purple person or the pink person? Do you think it is hotter for the purple person or the pink person?" Refer to Direct/Diffuse Light Lesson if needed. Now ask Atlas to tilt the earth so that the sun is directly overhead of the pink person. Ask: "Is the sun brighter or more direct for the purple person or the pink person? Do you think it is hotter for the purple or the pink person?"
3. While Atlas has the sun over the pink person's head, the teacher helps the class find the point to which the north pole points in the classroom (wall, ceiling, etc.). Teacher tapes the black circle on the wall or ceiling as a

reference point. Ask Atlas to orbit the sun (walk around the flashlight) keeping the North Pole pointing at the black circle. Remember to have Helios keep his light pointed at the earth. Have the rest of the class help make sure Atlas doesn't change the tilt of the earth. Have Atlas stop after one-half of an orbit so that he is opposite of where he started. As the Earth is orbiting the teacher explains that the earth is tilted one way and stays tilted the same way all the time.

4. Ask a volunteer to come up and make it daytime for the pink and purple people. It should be night for them if Atlas has orbited correctly so the volunteer will have to spin the earth. Ask: "Is the sun more direct on the purple person or on the pink person? Is it hotter for the purple person or the pink person? Is it summer time or winter time for that person? (summer for the purple person) Is it summer or winter for the pink person?"
5. Now have Atlas orbit the sun halfway around again making sure to keep the North Pole pointed at the black circle. Ask a volunteer to make it daytime for the purple and pink people. Ask: "Is the sun more direct on the purple or the pink person? Is it hotter for the purple or the pink person? Who is it summertime for? Wintertime? How do you know that? Is the sun brighter or more concentrated for the person who is in summer or the person who is in winter?"
6. At this point it is a good idea to point out that the seasons are opposite for people on the top (north) of the earth and on the bottom (south) of the earth. Ask: "When it is winter on the top (north) of the earth, what season is it on the bottom (south) of the earth? When it is winter on the bottom (south) of the earth, what season is it on the top (north) of the earth?" Teacher should repeat the orbit model as often as necessary, giving other volunteers the earth/sun responsibilities.

Random Acts of Kindness

Why study kindness?

- Kindness includes everyone. Kindness crosses all those distinctions that we sometimes place among ourselves—distinctions of race, religion, culture, gender, and age. Students learn that kindness is a language that everyone understands. Through kindness, we celebrate diversity.
- Kindness is a vital, lifelong, interpersonal skill. Students will use kindness daily in their relationships at home, work, and in the community.
- Kindness helps students connect actions with consequences. Students are almost always positively reinforced when they are kind to others. They see the gratitude of the recipient; they hear the "thank you." They know that they made a difference.
- Kindness improves students' self-esteem and the classroom climate. Whether academically proficient or not, students are given a way to excel through kindness. Students are more willing to participate in class when they know that ridicule of their answers will not be tolerated. This enhances the learning environment.
- Kindness is empowering. Kindness is one of the most powerful interpersonal tools that we, as human beings, use to connect with one another.

Kindness is an awareness that each of us develops *with practice and over time*. Through the kindness we give and receive, we begin to understand that we are intrinsically connected to those around us. We realize that we are part of a human community, in which giving and receiving kindness are vital to our health, harmony, and hope. Let the kindness flow!

What is a Random Act of Kindness?

When we go beyond duties that are expected of us and reach out to help another person or group of people, we are performing a Random Act of Kindness.

The word "random" can be interpreted in various ways. It originally was adopted simply to counteract the often-heard phrase "random acts of violence". **All acts of kindness—whether planned or unplanned—are valuable and beneficial.** When people are kind, they are improving their world by selflessly giving to another.

Activity Ideas Across the Curriculum

Reading and Writing

- Read excerpts from Acts of Kindness from the editors of Conari Press and use this as a discussion piece or inspiration for their journal.
- Have the students perform a Random Act of Kindness for a stranger and then write an essay describing the experience—how it made them feel and the reaction of the person who received their kindness.
- Provide time for students to start a kindness journal in which they can keep their own kindness stories, pictures, ideas, or feelings about Random Acts of Kindness.
- Ask students to think about a time when they hurt someone's feelings by being unkind and then to rewrite the situation with a different outcome.
- Ask students to pick two people who have done something nice for them. Have them write letters of appreciation, explaining how those people have made a difference in their life.
- Collect quotes about kindness. Put them up around the room and discuss what they mean.
- Have students look for Random Acts of Kindness in the newspaper and summarize the stories for the rest of the class.
- Write a thank you note to a firefighter or the police for keeping us all safe.
- Kindness Acrostic. Use the letters of KINDNESS to create acrostic poems.

Math

- Have students tutor other students in math.
- Make a quilt out of paper or fabric as part of a unit on measurement, with each patch containing a drawing of an act of kindness. After it is completed, the class can hang the quilt in the hallway.
- Create class money that can be given to a student by another student, the instructor, or administrator when the student does something kind or makes a difference that day. At the end of the month, there could be an auction or a store where the student can use his or her money to buy items.
- Collect aluminum cans to recycle. Weigh the cans and calculate how much money will be received from recycling them. After recycling the cans,

Activity # 23 (Page 3 of 4)

have a class party with the money. Figure out how much it will cost for the party supplies and food.

Science

- Learn about how pollution and trash affect the environment, including animals and plants. Discuss how kindness towards our environment can help humans, animals, and plants.
- Adopt a nearby park or the school grounds and work together to keep it clean and beautiful.
- Learn how to make homes more energy efficient. Discuss how energy efficiency helps the environment and, in turn, humans and animals.

Social Studies

- Choose a problem that needs to be solved in your area. Contact the appropriate local officials to try and get it solved. Learn about the political process by attending city council meetings, visiting local officials, and writing letters.
- Create a crossword puzzle or word search with the names of kind people from history. Discuss how each historical figure was kind.
- Discuss the following quote: "Human kindness has never weakened the stamina or softened the fiber of a free people. A nation does not have to be cruel to be tough." -Franklin D. Roosevelt. Students probably will not agree, but you will have an interesting discussion. Mention the merits of cross-cultural kindness and its power to create connections among people who might never meet otherwise (i.e. Peace Corps).

For more Random Acts of Kindness ideas go to <http://www.actsofkindness.org/>

Activity # 3

World Health Day

Each year on April 7th, the world celebrates World Health Day. On this day around the globe, thousands of events mark the importance of health for productive and happy lives. According to the World Health Organization, "health" includes physical, mental, and social well-being. Celebrating health includes promoting positive health and vitality, preventing infectious and noninfectious disease and injury, organizing and providing services for diagnosis and treatment of illness, and rehabilitating sick and disabled persons.

It is Time to Think about Health:

1. As a class, list at least five important things people need to do to stay physically healthy. Then list at least five important thoughts people need to think to stay mentally healthy.
2. Divide the students into teams. Each team will be event coordinators for a new holiday. Combine World Health Day and National Humor Month. What would you call the holiday? What events would you prepare for participants? As a team develop an agenda for the events and present it to the class.
3. Sleep helps the brain's learning power, memory, and overall performance. Not getting enough sleep causes stress, anger, lack of motivation, and slower physical reflexes.
 - a. How would sleep be different if you were on a space station for a year? Why?
 - b. Sleeping Beauty was awakened by the kiss of a prince. Brainstorm ways to be awakened in the morning. Rank in order the ten most pleasant ways. Graph the results.
 - c. Take a survey. How many "morning" people and "night" people are there in the class? Graph the results on the board.
 - d. Hold a debate of the "morning" people versus the "night" people. Debate the advantages of both kinds of "sleepers" and try to point out the disadvantages of the opposite side.

Communication Activities

Alexander Graham Bell was born on March 3, 1847, in Edinburgh, Scotland. He was a teacher of the deaf and from the age of 18 wanted to transmit speech electrically. After nine years, on March 10, 1876, Bell transmitted "*Mr. Watson, come her. I want you*"—the first telephone message. He was 29 years old.

1. What would be your first message to someone on the Internet? What would be your first message to a learner unable to speak English? **(ESL Activity)**
2. How would your message be different from a message to a learner born and raised on the planet Mercury?
3. Find Scotland on a map. How would their climate differ from ours? What language do they speak? How far is Edinburgh from your town?
4. The telephone was invented in 1876. What was happening in America during its centennial? Research on the Internet.
5. Research other famous inventors. Have each student choose an inventor and make a presentation to the class.

Activity # 8

The Sounds of Music

This activity will help students learn to use music as a resource for managing stress. Students will also understand they can control their environment in an effort to maintain mental wellness. Some research has suggested that music is processed by the right cerebral hemisphere. Other research has shown that the left hemisphere is also important. Listening to music and appreciating music is a complex process that involves memory, learning and emotions. It is likely that there are multiple areas of the brain that are important for the musical experience.

Materials:

- CD/Cassette player
- CD's supplied by the students

Procedure:

1. Prior to the activity, tell students to bring in their favorite music that they find relaxing.
2. Make a list on the board of each song title and the artist who performed the song.
3. Play one of the songs and have students listen to the music, with eyes open or shut.
4. Ask the students how they felt after listening to the song. More relaxed? More tense?
5. Repeat with the other songs.
6. Have the students vote on which song they thought was the most relaxing.

Writing Extension: Ask the students to answer the following questions on a piece of paper after each song has ended:

- What do you think the artist was feeling when he or she wrote the song?
- What do you think the artist was singing about? Are there any underlying meanings that you perceive?
- What relaxing sensations come to mind?

Math Extensions:

- Chart the results of the vote in number 6 above. Find percentages and fractions.
- Bring a sheet of music. Talk about the notes. How many quarter notes make up a measure? Use fractions to help explain how the music is composed.

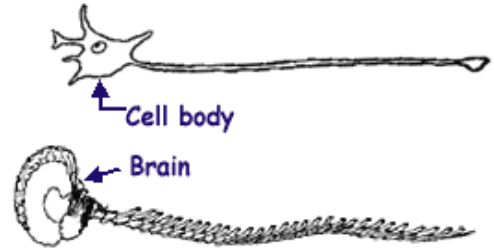
Science: Discuss the effects of music on the brain and concentration.

Brains and Neurons Game

If you have played the game called "Chutes and Ladders," then you know how to play "Brains and Neurons."

Materials:

- Game board
- Dice
- Markers (beads, coins, etc.)



How to play:

1. The first player rolls a die (or use two dice for a faster game) and moves his or her marker to the space shown on the die.
2. If a player's marker lands on the cell body of a neuron, the player can move forward to the space at the end of the neuron. If a player's marker lands on a brain, the player must move down to the space at the end of the spinal column.
3. The first player to space #100 is the winner.

Positive Thoughts Box

Creating a positive thoughts box can be a huge step for students to begin thinking more positively about themselves and about life in general.

Materials:

- Shoebox, oatmeal container or coffee can
- Felt or paper to cover container, glitter, beads or yarn to decorate

Procedure:

1. Bring in shoeboxes, oatmeal containers, coffee cans, etc. Have each student pick a container, cover it with felt or paper, and decorate it with glitter, beads, yarn, or other items to make it uniquely theirs.
2. Have each member of the class write down something that is special about each student and place all of the sentiments in the positive thoughts box.
3. The instructor can add his or her own special thoughts.
4. Encourage the students to tell their family members to add special thoughts to the box.
5. Start each class session with a positive thought for the day and encourage students to add this to the collection.

This is not a one time project. It should be an ongoing project with positive thoughts added often and reviewed periodically to reinforce the student's self-worth.

This activity is wonderful to encourage parents to repeat at home with their children creating a positive thought container for each child and hopefully beginning a healthy cycle of positive thought.

Brain Mix-Up

Unscramble the following letters to get a word about the nervous system:

1. raibn _____

2. nnoeur _____

3. venre _____

4. seyspan _____

5. yee _____

6. slinsp dorc _____

7. nxoa _____

8. trocex _____

9. inleym _____

10. fexler _____

Answers: 1. brain, 2. neuron, 3. nerve, 4. synapse, 5. eye 6. spinal cord, 7. axon, 8. cortex, 9. myelin, 10. reflex

Positive Mental Health

When was the last time you asked someone at the gym what was ailing them? Chances are the person on the treadmill next to you is exercising to increase his or her physical well-being, not fight an illness. So why do so many people wait until they develop a mental illness before taking steps to improve their mental and emotional well-being?

Public perceptions are an important factor. Media images portray physical fitness as sexy, a worthy pursuit for people with self-discipline and high self-esteem. In contrast, learning to deal with emotions and improve one's mental health is viewed as an indication of weakness, something only a sick person needs to do.

These widely held views prevent people from achieving positive mental health and increasing their resistance to mental illness.

According to statistics, one in five people has a mental illness at any given time. Moreover, people with low self-esteem are up to three times more likely to experience depression than people with high self-esteem. And men and women under constant stress are almost twice as likely to develop depression than their less-stressed counterparts.

What is Stress?

Stress is necessary to life and survival. It can be positive and beneficial (eustress) or it can be negative and detrimental (distress).

"Stress is the non-specific response of the body to any demand made upon it."

What defines a demand?

The "demand" can be a threat, a challenge or any kind of change that requires the body to adapt.

The "threat" can be real or imagined.

The response is automatic, immediate and generalized.

It is usually perceived as feeling tense, nervous, upright or anxious.

The stress reaction is mediated by adrenaline, Cortisol and other stress hormones. It is also called "The Fight or Flight Response."

What happens during a stress reaction?



There is an increase in:

Heart rate
Blood pressure
Breathing rate
Muscle tension
Perspiration
Mental alertness and senses are heightened
Blood flow to the brain, heart and muscles
Blood sugar, Cholesterol, Platelets and clotting factors



There is a decrease in:

Blood flow to the skin
Blood flow to the digestive tract
Blood flow to the kidneys

What are the symptoms of stress?

- **Physical symptoms:**

Headache
Dizziness
Clenching jaw, grinding teeth, facial twitching
Chest pain or tightness, palpitations, shortness of breath or air hunger
Nausea, vomiting, heartburn, indigestion, cramps, diarrhea, constipation
Shaking, trembling, tremor of hands, clenched fists
Agitated, restlessness, feeling hyper
Sleep disturbances (trouble falling asleep, disrupted sleep and/or early wakening)
Fatigue, weakness, appetite loss
Loss of interest in sex
Frequent colds, flu or respiratory infections
Increases in pre-existing conditions such as migraines, colitis, ulcer, asthma

- **Mental symptoms:**

Decrease in concentration and increased forgetfulness
Loss of decisiveness
Decrease in sense of humor
Mind racing, drawing blanks or confusion

Activity # 2 (Page 3 of 4)

Emotional symptoms:

Anxious, tense or nervous

Depressed, sad or unhappy

Fear, worry, pessimism

Irritable, impatient, angry, frustrated

Apathy, indifference, loss of motivation

- **Behavioral symptoms:**

Fidgeting, pacing, restlessness

Compulsive smoking, drinking, overeating

Nail biting, foot tapping, jiggling knees

Blaming, yelling, swearing

Crying, weeping, feeling on the verge of tears

Sources of stress (stressors or triggers)

- **Environmental:**

Noise, crowding, clutter

Cold, heat, humidity

Bright lights, low light

Heights or confined spaces such as airplanes, cubicles, elevators, no windows

- **Social (Interaction with people):**

Relationship problems (family, lover, friends)

Work relationships (boss, co-workers, customers)

Crowds, parties, strangers

Rude, aggressive, critical or competitive people

Unreliable, moody, indecisive or boring people

- **Institutional:**

Rules, regulations, restrictions, bureaucracy, red tape

Deadlines, schedules, meetings, formalities, and office politics

- **Major life events (change in life circumstances):**

Both positive and negative life events can cause stress.

Getting married

Moving to a new house or city

Having a child

Death of spouse or close relative

Activity # 2 (Page 4 of 4)

Promotion or job loss

The impact of stress from major life events can last from 12 to 24 months but diminishes over time

- **Daily hassles:**

Small, repeated daily situations that irritate, annoy and frustrate

Rush-hour traffic

Misplacing things

Waiting in lines

Being put on hold (telephone)

Mechanical breakdowns

Home maintenance

Searching for a parking spot

If I Were In Charge of the World

By Judith Viorst

If I were in charge of the world

I'd cancel _____,

_____,

_____, and also _____.

If I were in charge of the world

There'd be _____,

_____, and

_____.

If I were in charge of the world

You wouldn't have _____.

You wouldn't have _____.

You wouldn't have _____.

Or " _____."

You wouldn't even have _____.

If I were in charge of the world

A _____ would be a vegetable

All _____ movies would be G,

And a person who sometimes forgot to _____,

And sometimes forgot to _____,

Would still be allowed to be

In charge of the world.

neurons	you're special	communicate
take time for yourself	glass is ½ empty	be yourself
support system	stress management	smile
counselor	random acts of kindness	connections
dreams	stress	depression
count your blessings	relax	laugh
psychiatrist	glass is ½ full	mood

Mental Wellness Bingo - Word List		
anxiety	friends	follow your heart
help	lighthearted	journaling
the blues	content	negative people
love life	bipolar	

dementia	share	sanity
uniqueness	happy	joy
chill out	music	peace
goals	laugh	healthy lifestyles
action	mental wellness	enjoy life
humor	psychiatric drugs	expectations

STUFF Can

Situations That Undermine Feeling Fantastic

Introduction:

Life's problems can seem overwhelming at times. This exercise provides an avenue to look at issues in a lighter way and to possibly allow teachers to help address these common issues in a more global way. It can be a great segue between lessons or when students need a distraction from their daily lessons. It can take a few minutes or longer depending on how much time an instructor wants to devote. Hopefully it will assist students to deal effectively with life's issues.

Objectives:

In this lesson,

- Students will learn strategies to assist in problem solving
- Teachers and students will build rapport

Materials:

- Oatmeal container or coffee can (empty)
- Felt or paper to cover container, glitter, beads or yarn to decorate

Procedure:

6. Decorate a container and write STUFF on the outside cover;
7. Have each member of the class write down something that is a problem or issue going on in life. This is **STUFF** or **Situations That Undermine Feeling Fantastic**
8. Stuff the can with the papers
9. The instructor can add situations that might need to be addressed and also might need to rewrite some of the issues to maintain confidentiality.
10. On a separate day (when students need a break from studying or a quick change of pace between topics), remind students of the STUFF can and pull out an issue two.
11. Facilitate discussion about this issue encouraging students to help each other find solutions.

Conclusion:

This is an ongoing project with no need to identify whose issue it is. Often times there are common needs for discussion among students. This activity

Best Bean Activity

1. Give each student 5 dried beans. Ask them to examine the beans and choose the "Best" bean. Don't give them any other information.
2. After 5 minutes, have some or all of the students to explain how they chose their "Best" bean.
3. Relate the beans to people by asking the following questions:
 - a. Are all of your beans the same on the inside?
 - b. Are all people the same on the inside?
 - c. When we eat the beans, so all the beans taste the same?
 - d. Imagine you are hanging off a cliff and are desperately clinging to a few blades of grass that are pulling loose from the ground. Suddenly, a hand appears from above to rescue you. Would you wait to see what that person looked like before you reached for help?
 - e. Is one bean better than another?
 - f. Is one person better than another?
4. Have students fold a piece of paper in half lengthwise. On one side, ask them to list all the things they don't like about themselves. On the opposite side, have them list the things they like about themselves. Ask the students to compare the two lists. Ask them why it was more difficult to list the things they liked about themselves.
5. Brainstorm what influences their feelings about themselves. (Parents, Family, TV, Magazines, etc.)
6. Define self-esteem.
9. Ask the class to brainstorm causes for low self-esteem.
10. After they have made suggestions, ask them when self-esteem begins to form.
11. Have students write a paragraph explaining this statement. "You can't love others until you love yourself."
12. Explain how self-esteem affects relationships with others.
13. Discuss the self-esteem of Miss Piggy from Sesame Street.
 - a. How does Miss Piggy feel about herself?
 - b. What are some of her flaws?
 - c. Why do we like Miss Piggy?
 - d. How would Miss Piggy act if she didn't have a high self-esteem?
 - e. Would the Miss Piggy character be as interesting if she had a low self-esteem?Why?

14. Break students into groups and ask them to role play the following situations.
 - a. a parent makes hurtful statements to a child which would cause low self-esteem
 - b. the appearance of a person with low self-esteem
 - c. the appearance of a person with high self-esteem
 - d. friends encouraging a person who has low self-esteem
 - e. a person with low self-esteem and a person with high self-esteem applying for the same job
 - f. the appearance of a person with high self-esteem
15. Read the children's book, The Little Engine That Could.
16. Have students write a paragraph on how they can raise the self-esteem of others. Read several aloud.

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