



Creation Lens

Exploring the World, Discovering God

Grade Level: Grade 8

Title:

Turgor Pressure & Grace of Reconciliation

Denomination: Catholic

Lesson ID: LS-G8-01-CA

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Note: Web sites referenced in this lesson were valid at time of publication.

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LIFE SCIENCE – GRADE 8 - CATHOLIC
LESSON TITLE: Turgor Pressure & Grace of Reconciliation

GENERAL CONCEPT: Staying strong.

SCIENCE LESSON CONCEPT

- Turgor pressure keeps plant stems erect

GOAL OF SCIENCE LESSON

- Students will observe turgor pressure in action.

OUTCOME EXPECTED

- Students will be able to describe turgor pressure.
- Students will see the importance of watering plants.

RELIGION LESSON CONCEPT

- Reconciliation refreshes us and gives us strength
- Reconciliation helps us stand erect before God

GOAL OF RELIGION LESSON

- Students will learn the value of the Sacrament of Reconciliation.
- Students will experience receiving the Sacrament of Reconciliation.

OUTCOME EXPECTED

- Students will understand the importance of the Sacrament of Reconciliation in leading a Catholic life.
- Students will experience the refreshing grace of the Sacrament of Reconciliation.

MATERIALS NEEDED

- Science Journal page: Turgor Pressure
- Pen or pencil
- Wilted stalk of celery with leaves still on
- Glass of water
- Cutting knife
- Blue food coloring
- Drinking glass
- Drinking straw

SCIENCE METHODOLOGY

- **WRITE** “Turgor Pressure” on the board or flip chart.
- **SHOW** students the stalk of wilted celery.
- **ASK:** What do you think caused this stalk of celery to be in less than ideal condition?

MATERIALS NEEDED

- Textbook on Sacrament of Reconciliation
- DVD on Sacrament of Reconciliation for Junior High or Senior High (see Religious Links section). NOTE: USCCB has streaming videos on all of the Sacraments.
- Religion Notebook
- Good Examination of Conscience pamphlet for 8th Graders/Youth
- Time and place to receive the Sacrament of Reconciliation
- Quiet place for reflection and preparation
- Parable of the Prodigal Son (Luke 15: 11-24)
- Reflective music and a CD player
- Treat for the students after reception of the sacrament

RELIGION METHODOLOGY

NOTE: BE SURE TO GET A GOOD CONFESSOR FOR YOUR STUDENTS SO THAT THEY MAY RECEIVE THE SACRAMENT OF RECONCILIATION AT THE END OF THE LESSON.

- **ASK:** What has been your experience of receiving the Sacrament of Reconciliation? Going to Confession?

- **SAY:** We are going to use the science principle of Turgor Pressure to resuscitate this stalk of celery.
- **HAVE** the students put water in the glass and then add two or three drops of blue food coloring.
- **CUT** a small section from the bottom of the stalk of celery.
- **SAY:** Cutting off this section opens the tubes of the stalk of celery.
- **HAVE** the students use the celery stalk to stir the water then leave the celery in the glass.
- **SAY:** Draw our experiment on your Science Journal page: Turgor Pressure.
- **ASK:** What is your hypothesis about what we will see tomorrow when we examine the stalk of celery?
- **HAVE** the students write the hypothesis on the Science Journal page.
- **PLACE** the experiment in a safe place until the next day.
- **REVISIT** the Science Journal page hypothesis.
- **EXAMINE** the stalk of celery.
- **ASK:** What changes do you observe? (blue color in veins, perhaps leaves, celery stalk should be erect)

- **DISCUSS** students' experiences. Be compassionate for any who have found it scary or intimidating or who have had a bad experience. Reassure them that their experience is not the norm.
- **DESCRIBE** God as the Father of the Prodigal Son. Be sure to call the parable the Story of the Forgiving Father. Emphasize the role of the Forgiving Father:
 - ~ the father gave the younger son his possessions even though the son had no right to an inheritance until his father was died;
 - ~ the father kept watch for his son every day;
 - ~ the father ran out to meet the son;
 - ~ the father forgave the son without a lot of ceremony;
 - ~ the father prepared a feast for his returning son;
 - ~ the father was overjoyed that his son had returned.
- **SAY:** This is how God the Father loves us. He is just like the Forgiving Father in the parable that Jesus told. Remember that Jesus came to teach us more about His Father and His kingdom. He came to open the gates of heaven and eternal life to us through His suffering, death, resurrection and ascension into heaven. He sent the Holy Spirit to be with us and guide us.
- **ASK:** When we know we should receive the Sacrament of Reconciliation, how does the Holy Spirit help us?

- **SAY:** Florists often have to color daisies, carnations and other flowers for various holidays and for weddings or other special celebrations. Based on your celery stalk experiment, write a step by step lab report on coloring flowers.
- **ALLOT** time for the lab report to be written.
- **ASK:** Define Turgor Pressure by what you have observed.
- **SHOW** the students a drinking glass with a straw.
- **ASK:** How does this glass and straw help explain turgor pressure? (water is drawn up into the straw by sucking force)
- **ALLOW** students to explain Turgor Pressure and then write a definition on the Science Journal page.
- **HAVE** the students look up the definition of Turgor Pressure in their Science textbook or dictionary and compare answers.
- **ASK:** Why is it important to water plants correctly?
- **POSIT:** Turgor Pressure enables plants to stand erect.

(urges us to go, helps us see our sins, helps us to be truly sorry, helps us to want to change our life)

- **ASK:** Since turgor pressure enables the celery stalk to stand erect when it is wilted, what does the Sacrament of Reconciliation do for us? (helps to cleanse us, refreshes us, makes us strong so we can walk erect and strong in our faith)
- **SAY:** We are going to have the opportunity to receive the Sacrament of Reconciliation (today, tomorrow) and so we are going to begin to prepare.
- **ASK:** What are the steps for preparing to receive the Sacrament of Reconciliation? (refer to Religion Textbook or Catechism of the Catholic Church if necessary)
- **BEGIN** the preparation with a prayer to the Holy Spirit.
- **GIVE** each student a copy of the Examination of Conscience pamphlet and either go over them together or assign each student a quiet place to sit and read them.
- **GATHER** together and pray the Act of Contrition.
- **REVIEW** how to go to confession. (may have been a while for some students)
- **ACCOMPANY** the students to church and allow some quiet time with reflective music before confessions begin.

- **ALLOW** time for students to receive the sacrament.
- **AFTER ALL HAVE RECEIVED**, say a prayer of thanksgiving for the forgiveness, mercy, and love given in the sacrament.
- **WHEN BACK IN THE CLASSROOM**, remind the students that the Forgiving Father prepared a feast for his son because he was so happy his son had returned. God our Father is overjoyed that we have returned home. To show that, we are going to have a special treat.
- **ALLOW** time for the special treat to be consumed.
- **POSIT:** The Sacrament of Reconciliation is a gift from Jesus to cleanse us, refresh us, and assist us to walk tall and strong in our faith.

SCIENCE LINKS

www.cairo.au/resources/ps1vc.html

Moving matches (Activity) Follow these instructions for a great party trick that uses capillary action and turgor pressure. Easy to do demonstration of turgor pressure.

www.makeandtakes.com/food-coloring-flowers

Food Coloring flowers / Make and Takes – Craft Ideas, Kids

Whenever we had white flowers in the house growing up, I'd give them the food coloring treatment...how long does it take to dye carnations with food dye. Site has good pictures of the flowers as they progress through the process.

RELIGION LINKS

www.olpgchicago.org/examination_conscience.htm

Our Lady's Prayer Groups – Examination of Conscience
If You Want Heaven, You'll Need His . Mercy! EXAMINATION OF CONSCIENCE 1. Pride: do I act like I know everything and have all of the answers? Do I think I am always right? This examination of conscience is basically grouped according to virtues. The teacher may want to edit the list of sins that must be confessed to better fit Eighth Graders.

<http://www.diane-laney-fitzpatrick.suite101.com/conscience-examination-teens-a16780>

Examination of Conscience Teens: Teen-agers Preparing for...
An Examination of Conscience for Teens 1. First Commandment. Do you worship false gods or statues, consumerism or peer approval? Do you ignore or avoid old friends in..While based on the Ten Commandments, it asks questions that would apply even to young teens.

KEY WORDS

- TURGOR PRESSURE
- TURGIDITY
- PRESSURE
- PLANT CELL WALL
- RESUSCITATE

KEY WORDS

- PARABLE
- SACRAMENT
- RECONCILIATION
- PENANCE
- CONFESSION
- FORGIVING FATHER
- PRODIGAL SON
- EXAMINATION OF CONSCIENCE
- THANKSGIVING
- HOLY SPIRIT