



Creation Lens

Exploring the World, Discovering God

Grade Level: **Grade 4**

Title:

Physical and Chemical Changes & Spiritual Changes

Denomination: **Catholic**

Lesson ID: **PS-G4-09-CA**

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

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PHYSICAL SCIENCE – GRADE 4 - CATHOLIC
LESSON TITLE: Physical and Chemical Changes & Spiritual Changes

SCIENCE LESSON CONCEPT

- Physical Properties
- Physical Changes
- Chemical Properties
- Chemical Changes

GOAL OF SCIENCE LESSON

- Students will describe, identify, and observe physical properties of matter.
- Students will describe, identify, and observe physical changes of matter.
- Students will describe, identify, and observe chemical properties of matter.

RELIGION LESSON CONCEPT

- Spiritual change & growth
- Lenten opportunities for growth
- Sacrament of Reconciliation as spiritual growth

GOAL OF RELIGION LESSON

- Students will discuss how we must continue to grow.
- Students will experience how during Lent we have the opportunity to spiritually change.
- Students will experience how the Sacrament of Reconciliation gives us the opportunity to spiritually grow.

- Students will describe, identify, and observe chemical changes of matter.

OUTCOME EXPECTED

- Students will be able to describe the physical and chemical properties of matter.
- Students will be able to describe the physical and chemical change process of matter.

MATERIALS NEEDED

- Borax powder – enough for teacher experiment and enough for each student’s experiment
- Elmer’s white glue
- Food coloring
- Distilled water
- Plastic baggies – one per student and teacher
- Small plastic cups (small plastic condiment cups work well)
- Empty 2 liter soda bottles
- Wipes and paper towels for clean up
- Science Journal Page: Physical Properties and Change

OUTCOME EXPECTED

- Students will be able to apply the opportunities for spiritual growth through Lenten observances.
- Students will be able to experience the opportunity for spiritual growth through the reception of the Sacrament of Reconciliation.

MATERIALS NEEDED

- Cut-out of a dove
- Green and brown construction paper –1 piece per student
- Scissors
- Glue
- Priest for Sacrament of Reconciliation
- Pamphlet: “How to Go to Confession” or teacher made step-by-step explanation
- Chalkboard or chart paper

- Science Journal Page: Chemical Properties and Change
- Pen
- Markers or colored pencils

SCIENCE METHODOLOGY

(Teach lesson after you teach the physical and chemical properties and changes.)

- **DISCUSS** and observe the physical properties of water.
- **HAVE** students take notes on the Science Journal Page: Physical Properties and Change.
- **DISCUSS** and observe the physical properties of white glue.
- **DISCUSS** and observe the physical properties of borax powder.
- **ASK:** Can you tell the chemical property of water, of glue, and of borax by looking at them?
- **MIX** 1 bottle of glue to one bottle of water (equal portions).
- **DISCUSS** what physical change but not chemical change takes place.
- **MIX** water and borax in the 2 liter bottle – Equal

RELIGION METHODOLOGY

- **SAY:** Our soul is not something we can see inside of us. We can know what our spiritual life is like through our thoughts and actions.
- **ASK:** What are some actions that we do that show others our spirituality? (sharing, loving, helping, etc.)
- **SAY:** During Lent and when we receive the Sacrament of Reconciliation, we try to change our lives. We think about the things we do. We try to think about how some actions take us away from God and what could we do to change those.
- **ASK:** What could you do during Lent that would help you grow spiritually – to become more like Jesus?
- **LIST** the students' suggestions on the chalkboard or chart.
- **GIVE** each student a dove cut-out to decorate with their name and then place it on a stem with the leaves cut out of construction paper.
- **HAVE** the students write what they can do during Lent

portions.

- **ASK:** Are there chemical changes?
- **LET** the students feel that the bottom of the bottle gets warm.
- **GIVE** each student a plastic baggie, small cup of glue and water mixture and small cup of borax. (equal amount of glue/water mixture and borax)
- **HAVE** the students pour the glue mixture into the bag and then add the borax.
- **HAVE** the students knead and mix the borax, water, and glue mixture until it is a ball.
- **DISCUSS** the chemical changes that took place.
- **OPTIONAL:** You can add food coloring to the ball and mix it, but it is not chemical change – only physical change.
- **POSIT:** Matter has both physical and chemical properties. Matter can be changed physically and chemically.

to grow spiritually on the leaves of their Dove flower.

- **TELL** the students that they will have the opportunity to receive the Sacrament of Reconciliation on _____ day at _____ o'clock.
- **ASK:** How would receiving the Sacrament of Reconciliation be a way of growing spiritually more like Jesus? (sorrow for sins, forgiveness, intent to do better and to avoid sin)
- **GIVE** each student the “How to Go to Confession” pamphlet or teacher made step-by-step instructions and carefully review all the steps with the students.
- **HELP** the students make a good Examination of Conscience by going over the Ten Commandments and the Precepts of the Church.
- **ON THE CONFESSION DAY**, prepare the students with a short examination of conscience, the Act of Contrition, and a prayer to the Holy Spirit.
- **CELEBRATE** the Sacrament of Reconciliation.
- **POSIT:** Spiritual growth opportunities are given to us daily but especially during Lent and at the time of the Sacrament of Reconciliation.

SCIENCE LINKS

www.umd.umich.edu/sep/students/jolenew/jolenew_giless.html
Properties of Matter Grade 4 This is a five lesson plan unit on the **properties of matter** to be taught in the **4th grade**.

www.cmhouston.org/.../2096/properties%20of%20Matter.pdf
4th Grade Supplemental Learning Activities: Properties of Matter 4th Grade Supplemental Learning Activities: Properties of Matter ... Activity 1: Introduction to **Properties of Matter** (40 minutes) ...

RELIGIOUS LINKS

[Http://www.thelightsisonforyou.org/pdfs/TheLightisonforyou_confessionguideforchildren.pdf](http://www.thelightsisonforyou.org/pdfs/TheLightisonforyou_confessionguideforchildren.pdf)
An excellent web-site with an examination of conscience for children.

www.time4learning.com/scope-sequence/4th_grade_science.shtml
4th Grade Science Lesson Plans - Time4Learning Fourth grade science lesson plans for Time4Learning's online ...
Chapter 2 - "**Changes** in Matter & Energy" The learner ...
Body Systems - Recognize that the human **body** contains ...



KEY WORDS

- MATTER
- PROPERTY
- PHYSICAL PROPERTIES
- CHEMICAL PROPERTIES
- PHYSICAL CHANGES
- CHEMICAL CHANGES



KEY WORDS

- GROWTH
- CHANGE
- LENT
- SACRAMENT OF PENANCE
- CONFESSION

KEY WORDS



MATTER

GROWTH

PROPERTY

CHANGE

PHYSICAL PROPERTIES

LENT

CHEMICAL PROPERTIES

SACRAMENT OF PENANCE

PHYSICAL CHANGES

CONFESSION

CHEMICAL CHANGES