



*Grade Level: Grade 5*

*Title:*

## **The Momentum of an Object & The Momentum of the Spiritual Life**

*Denomination: Catholic*

*Lesson ID: PS-G5-01-CA*

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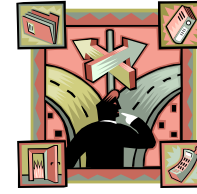
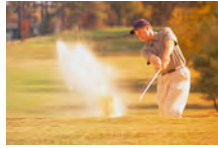
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***Note: Web sites referenced in this lesson were valid at time of publication.***

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## PHYSICAL SCIENCE – GRADE 5 – CATHOLIC

### LESSON TITLE: The Momentum of an Object & The Momentum of the Spiritual Life

**GENERAL CONCEPT: Staying On Course**

#### **SOCIAL STUDIES LESSON CONCEPT**

- Momentum is key for an object to stay on path
- How can momentum be maintained?
- How does force/friction play an essential role?

#### **GOAL OF SCIENCE LESSON**

- Students will learn how a golf ball maintains momentum and works against friction while force is being used.

#### **OUTCOME EXPECTED**

- Students will observe that a golf ball traveling through a mini-golf course has to overcome many obstacles.

#### **RELIGION LESSON CONCEPT**

- We choose a path to live our lives
- We need the Holy Spirit to push us forward

#### **GOAL OF RELIGION LESSON**

- Students will learn that working together as a family gives us momentum to lead us to heaven.

#### **OUTCOME EXPECTED**

- Students will observe that, like the golf ball, we have to overcome many obstacles.

## **MATERIALS NEEDED**

- Science Journal page: Momentum
- Pen or pencil
- Outdoor carpeting (greens)
- Pieces of wood
- Hammers
- Nails
- Scissors
- Pipes or tubes
- Putter
- Golf ball
- Any additional obstacles
- Vocabulary cards

## **MATERIALS NEEDED**

- Religion Notebook
- Pen or pencil
- Large outline of a pathway or road
- Additional attachments of separate roads
- Small 4 inch cut-outs of people
- Copies of the Ten Commandments, the Beatitudes, Catholic Social Teaching
- “HOLY SPIRIT” cards (like the Chance cards of Monopoly): grace: free putt, Beatitude: do-over shot, etc. for second try on the course
- BAPTISM sign
- Marker
- Putter
- Golf ball

## SCIENCE METHODOLOGY

- **IDENTIFY** the importance of:
  - ~ momentum
  - ~ force
  - ~ friction
  - ~ balanced forces
  - ~ unbalanced forces
  - ~ gravitation
- **SAY** that the golf ball is miniscule to its pathway.
- **EXPLAIN** that the ball must overcome numerous obstacles and objects to reach its goal.
- **HAVE** the students design and construct a mini golf course (pathway) using ideas from the vocabulary.
- **HAVE** each student bring in items from home to make the course more difficult.
- **HAVE** the students, as they are building the course, roll a ball along the course to explain what is happening.
- **ASK** the students what would be the best way to navigate the course?
- **RECORD** answers as well as scores of navigation; how many strokes to the hole, etc.
- **DISCUSS** how momentum helped and hindered them as they navigated the course.

## RELIGION METHODOLOGY

- **USE** the large outline picture of the pathway or road to show students that life is a journey.
- **ASK:** What is the best direction to take?
- **TELL** the students that the Holy Spirit is with us no matter what road we choose to take.
- **EXPLAIN** there are many roads or paths to choose.
- **ASK:** What can happen on your life journey?
- **ASK:** Are there any things that help us choose the best path?
- **RECORD** student replies.
- **ASK:** How do different golf clubs help a golfer navigate through a golf course?
- **RECORD** answers.
- **ASK:** What special spiritual tools (clubs) do we have? (Confession, mass, Beatitudes, virtues, teachings of the Church, spiritual counseling)
- **RECORD** student replies?
- **ASK:** Why don't you always use the same spiritual tool? (each problem is different)

- **DISCUSS** how force was applied.
- **DISCUSS** how friction helped and hindered their game.
- **DISCUSS** how momentum was stopped by the obstacles.
- **HAVE** the students draw the course (like a floor plan) on the Science Journal page and note their success in navigating the course.
- **POST** the “golf scores”.
- **DISCUSS** strategies for the next golf round.
- **HAVE** the students predict their next score and record it on the Science Journal page.
- **PLAY** another round on the course.
- **RECORD and COMPARE** scores.
- **ASK:** Did your game improve or not? Why?
- **POSIT:** Momentum must be maintained and obstacles overcome on a course.

- **POINT OUT** that if you choose the wrong path, you can always come back to the original road (Jesus) and continue on.
- **USE** the large outline picture of the pathway to do the next activity.
- **GIVE** students the cut-outs of people.
- **PLACE** the cut-outs at the start of the road and mark it “Baptism”.
- **USE** a marker to draw lines across the pathways and additional roads to make game spaces.
- **WRITE** the word HELP on many of the spaces.
- **PLACE** some of the obstacles from the golf course on the pathway.
- **LABEL** the obstacles: pride, selfishness, greed, mean words, stealing, fighting, bullying.
- **HAVE** the students select the place where they would like to arrive. Have them place the people cut-out that represents them at that arrival spot.
- **HAVE** the students lightly tap the golf ball with the putter.
- **SAY:** If the ball lands on a HELP space, you can choose to draw a HOLY SPIRIT card and do what it says OR choose to take another turn. If you choose to

take another turn and land on an obstacle, you will lose a turn.

- **SAY:** The object of the activity is to get your golf ball to your selected arrival spot and to show that the Holy Spirit will be there to give you help.
- **AFTER** all the students have arrived, discuss what obstacles they encountered.
- **ASK:** What help did you receive?
- **DISCUSS** the meaning of not choosing the Holy Spirit Card – doing it your own way on your own.
- **ASK:** What did this activity teach you about your Life's Journey?
- **POSIT:** Life is a journey to heaven – the arrival point God wants for us – but we can always choose our path and either choose to accept the help of the Holy Spirit or reject it.

## SCIENCE LINKS

[www.renaissanceschoolamherst.com/projects/roadways\\_sign.html](http://www.renaissanceschoolamherst.com/projects/roadways_sign.html)

[Mini golf Project](#) Nico was completely intrigued with the concept of a classroom miniature golf course right from the start. ... She loved the challenge of making the balls go up a straight ... an example of a Pre K project

[www.materialsworldmodules.org/exhibits/...golfcourse.shtml](http://www.materialsworldmodules.org/exhibits/...golfcourse.shtml)

CLASSROOM EXHIBITS. View Design Projects: Success Stories...several times...a complete 9 hole mini-golf course, and...the ball hard enough up the hill, gravity would make...

## RELIGION LINKS

[www.faithfirst.com/html/kidsOnly/kidsOnly.html](http://www.faithfirst.com/html/kidsOnly/kidsOnly.html)

[Kids Only Club for Grades 4 - 6](#) Kids' Clubhouse / KIDS ONLY Club / Teen Center. Faith First for Families | Catechists & Teachers En Español / Catechetical Leaders & Religion Coordinators ... click on 5<sup>th</sup> grade, Click on Chapter 18 for activity about listing people who help us make moral choices.

[www.loyolapress.com/making-good-moral-choices-role0plays.html](http://www.loyolapress.com/making-good-moral-choices-role0plays.html)

Teach children how to make good moral choices using this role-playing activity....Saints Stories for Kids.

## KEY WORDS

- MOMENTUM
- FORCE
- FRICTION
- BALANCED FORCES
- UNBALANCED FORCES
- GRAVITATION
- PAR
- HOLE IN ONE
- HOLE
- GREENS

## KEY WORDS

- LIFE JOURNEY
- OBSTACLES
- HOLY SPIRIT
- FREE WILL
- SPIRITUAL TOOLS