### Moon Movement

**Courtney Smith**  
**Moon Movement**  
**Science -**  
**Standard 3: The Physical Setting**  
**Indicators: 3.3.1**

#### Materials
1. Science Textbook  
2. Moon Phase Box  
3. Large Styrofoam Ball (Half Black and Half White)  
4. Lesson 3 Questions  
5. Moon Phase Calendar  
6. Moon Phase Worksheet

#### Objectives
1. When given a picture of the moon, the student will be able to identify the phase.  
2. Students will be more aware of natural phenomena in the world around them.

#### Motivation/Engagement
Have students sit in a circle on the carpet. Have a styrofoam ball placed in the center of the circle. Give students a flipbook with 28 circles in it. Have students draw what they see from one spot in the circle. Have students rotate around the circle in order, visiting all 28 places. This will make a flipbook that shows the progression of the phases of the moon. After completing the flipbook have students predict what they just drew pictures of.

#### Goal for Learner
After completing this lesson you will be able to identify the phases of the moon and explain why the moon changes each night.

#### Content and Procedures
- Read the title of Lesson 3: Why does the Moon’s Shape Change?  
- Have students predict why it changes  
- Preview vocabulary word: phase  
- Read Lesson 3  
- Answer questions as they read  
- Have students look in the Moon Phase Box  
- Watch simulation of the moon orbiting the Earth

#### Practice
For homework students will complete a worksheet by drawing the phases of the moon and naming the phases.

#### Application
Students will take home a calendar and observe the moon every night for a month.
Evaluation of Student Learning
Students will be graded on questions for Lesson 3
Moon Phase Calendar will be graded for completion

Closure
Review how this relates to the student’s lives.
Review how this relates to what students see in the night sky.

Gifted and Talented
To increase the difficulty of this activity, students could be asked to label the different phases of the moon and identify times when the moon is waxing and waning.
Moon Phase Flipbook Template
Products and Rubrics

At the end of this unit the students will be required to complete a culminating project. For this project, they will create a photojournal of patterns that they see everyday. Along with each photo, the students must also include a description of the picture and tell why it is a pattern and if possible what kind of pattern it is (repeating, arithmetic, geometric, or growing). Photojournals should contain at least 10 pictures. For those students who do not have a camera at home, they can use a digital camera while at school and take pictures of patterns that they see around the school building.

Requirements: 10 pictures, 1 paragraph describing each picture, more than one kind of pattern represented, mounted in book format

Other products created by students during this unit include:

• Poem at least four lines long that has at least two sets of rhyming words (see lesson plan #5 for further information)
• Moon Phases Flipbook (see lesson plan #10 for further information)
## Multimedia Project: Patterns Photojournal

**Student Name:**

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>8</th>
<th>6</th>
<th>4</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements</td>
<td>All requirements are met and exceeded.</td>
<td>All requirements are met.</td>
<td>One requirement was not completely met.</td>
<td>More than one requirement was not completely met.</td>
</tr>
<tr>
<td>Mechanics</td>
<td>No misspellings or grammatical errors.</td>
<td>Three or fewer misspellings and/or mechanical errors.</td>
<td>Four misspellings and/or grammatical errors.</td>
<td>More than 4 errors in spelling or grammar.</td>
</tr>
<tr>
<td>Attractiveness</td>
<td>Makes excellent use of font, color, graphics, effects, etc. to enhance the presentation.</td>
<td>Makes good use of font, color, graphics, effects, etc. to enhance presentation.</td>
<td>Makes use of font, color, graphics, effects, etc. but occasionally these detract from the presentation content.</td>
<td>Use of font, color, graphics, effects etc. but these often distract from the presentation content.</td>
</tr>
<tr>
<td>Originality</td>
<td>Product shows a large amount of original thought. Ideas are creative and inventive.</td>
<td>Product shows some original thought. Work shows new ideas and insights.</td>
<td>Uses other people's ideas (giving them credit), but there is little evidence of original thinking.</td>
<td>Uses other people's ideas, but does not give them credit.</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td>32 Points</td>
</tr>
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</table>
Poem Rubric

<table>
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<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements</td>
<td>Exceeds requirements set forth in assignment</td>
<td>Meets both requirements set forth in the assignment</td>
<td>Meets one of two requirements set forth in the assignment.</td>
<td>Meets now requirements set forth in the assignment.</td>
</tr>
<tr>
<td>Word Choice</td>
<td>Writer uses vivid words and phrases that linger or draw pictures in the reader's mind, and the choice and placement of the words seems accurate, natural and not forced.</td>
<td>Writer uses vivid words and phrases that linger or draw pictures in the reader's mind, but occasionally the words are used inaccurately or seem overdone.</td>
<td>Writer uses words that communicate clearly, but the writing lacks variety, punch or flair.</td>
<td>Writer uses a limited vocabulary that does not communicate strongly or capture the reader's interest. Jargon or cliches may be present and detract from the meaning.</td>
</tr>
<tr>
<td>Grammar &amp; Spelling (Conventions)</td>
<td>Writer makes no errors in grammar or spelling that distract the reader from the content.</td>
<td>Writer makes 1 error in grammar or spelling that distracts the reader from the content.</td>
<td>Writer makes 2 errors in grammar or spelling that distract the reader from the content.</td>
<td>Writer makes 3 or more errors in grammar or spelling that distract the reader from the content.</td>
</tr>
</tbody>
</table>

Total /12 points
# Moon Phase Flip Book

## CATEGORY

<table>
<thead>
<tr>
<th></th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attractiveness &amp; Organization</strong></td>
<td></td>
<td></td>
<td>All phases are in order and are neatly colored.</td>
<td>Phases are generally not in order or are not colored.</td>
</tr>
<tr>
<td><strong>Graphics/Pictures</strong></td>
<td></td>
<td></td>
<td>All labels accurately match all graphics.</td>
<td>Less than 15 labels correctly match the graphics.</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td></td>
<td></td>
<td>All labels are neatly written, booklet is bound, and/or is in order.</td>
<td>All labels are legible, booklet is bound, and/or is somewhat in order.</td>
</tr>
</tbody>
</table>

## Presentation

- All phases are in order and are neatly colored.
- All phases are in order and are colored.
- Most phases are in order and are colored.
- Phases are generally not in order or are not colored.
- Labels accurately match all graphics.
- 23-27 labels match the graphics.
- 15-22 labels match the graphics.
- Less than 15 labels correctly match the graphics.
- All labels are neatly written, booklet is bound, and/or is in order.
- All labels are somewhat neatly written, booklet is bound, and/or is mostly in order.
- All labels are legible, booklet is bound, and/or is somewhat in order.
- Labels are illegible, booklet is not bound, and/or phases are not in order.

**Total /12 points**
Patterns Post-Test
What Do You Know About Patterns?

Circle the best answer:

1. This is a letter, number, word, or other object that is repeated in a particular order.
   A. Core
   B. Pattern
   C. Sequence
   D. Constant

2. A ________________ is the shortest string of elements that you see over and over again:
   A. Core
   B. Pattern
   C. Sequence
   D. Constant

Complete the problems below by filling in the blanks:

3. 7, 26, 35, ______________, ______________, ______________

4. 357, 349, 341, ______________, ______________, ______________

5. 2, 3, 5, 8, 12, ______________, ______________, ______________

Numbers 6 & 7: Complete the problem by filling in the blanks. Then circle the core of each the pattern.

6. ←, ↓, →, ←, ↓, →, ______________, ______________, ______________

7. ______________, ______________, ______________, ♦, ♥, ♠
Find the rhyme scheme in the poem below:

8. My Robot

I told my robot to do my biddin'_.
He yawned and said, "You must be kiddin'."_
I told my robot to cook me a stew._
He said, "I got better things to do."
I told my robot to sweep my shack._
He said, "You want me to strain my back!"
I told my robot to answer the phone._
He said, "I must make some calls of my own."
I told my robot to brew me some tea._
He said, "Why don't you make tea for me?"
I told my robot to boil me an egg._
He said, "First-lemme hear you beg."
I told my robot, "There's a song you can play me."
He said, "How much are you gonna pay me?"
So I sold that robot, 'cause I never knew
Exactly who belonged to who.

-From Shel Silverstein’s Falling Up – page 36

Circle the best answer for each question:

9. The earth’s axis is:
   A. An imaginary line running through the center of the Earth
   B. An imaginary line around the Earth
   C. The path the Earth follows around the moon
   D. The path the Earth follows around the sun
Circle the best answer for each question:

10. The earth makes one complete rotation every ____________.
   A. 7 Days
   B. 28 Days
   C. 24 Hours
   D. 365 Days

11. It takes 1 year for the Earth to make one ___________ around the sun.
   A. Cycle
   B. Revolution
   C. Rotation
   D. Spin

12. The path the Earth follows around the sun is known as a(n):
   A. Orbit
   B. Oval
   C. Circle
   D. All of the Above

13. It takes about ________________ for the moon to make one revolution around the Earth.
   A. 1 week
   B. 24 hours
   C. 365 days
   D. 28 days
Name the phase of the moon shown in the pictures below:

14.

15.

16.

17.

18.
Patterns Post-Test Answer Key
What Do You Know About Patterns?

Circle the best answer:

1. This is a letter, number, word, or other object that is repeated in a particular order.
   A. Core
   B. Pattern
   C. Sequence
   D. Constant

2. A ___________________________ is the shortest string of elements that you see over and over again:
   A. Core
   B. Pattern
   C. Sequence
   D. Constant

Complete the problems below by filling in the blanks:

3. 7, 26, 35, ____ 44 ____, ____ 53 ____, ____ 62 ____

4. 357, 349, 341, ____ 333 ____, ____ 325 ____, ____ 317 ____

5. 2, 3, 5, 8, 12, ____ 17 ____, ____ 23 ____, ____ 30 ____

Numbers 6 & 7: Complete the problem by filling in the blanks. Then circle the core of each the pattern.

6. ←, ↓, →, ←, ↓, →, ____ ← ____, ____ ↓ ____, ____ → ____

7. ____ ♠ ____ , ____ ♥ ____ , ____ ♦ ____ , ♠ , ♥ , ♦
**Find the rhyme scheme in the poem below:**

8. **My Robot**

I told my robot to do my biddin’. ___A___
He yawned and said, “You must be kiddin’.” ___A___
I told my robot to cook me a stew. ___B___
He said, “I got better things to do.” ___B___
I told my robot to sweep my shack. ___C___
He said, “You want me to strain my back!” ___C___
I told my robot to answer the phone. ___D___
He said, “I must make some calls of my own.” ___D___
I told my robot to brew me some tea. ___E___
He said, “Why don’t you make tea for me?” ___E___
I told my robot to boil me an egg. ___F___
He said, “First-lemme hear you beg.” ___F___
I told my robot, “There’s a song you can play me.” ___E___
He said, “How much are you gonna pay me?” ___E___
So I sold that robot, ’cause I never knew ___B___
Exactly who belonged to who. ___B___

-From Shel Silverstein’s *Falling Up* – page 36

**Circle the best answer for each question:**

9. The earth’s axis is:

   A. An imaginary line running through the center of the Earth
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12. The path the Earth follows around the sun is known as a(n):
    A. Orbit
    B. Oval
    C. Circle
    D. All of the Above

13. It takes about ________________ for the moon to make one revolution around the Earth.
    A. 1 week
    B. 24 hours
    C. 365 days
    D. 28 days
Name the phase of the moon shown in the pictures below:

14. [Image of a Gibbous Moon] — Gibbous Moon

15. [Image of a Crescent Moon] — Crescent Moon

16. [Image of a Full Moon] — Full Moon

17. [Image of a Third Quarter Moon] — Third Quarter Moon

18. [Image of a New Moon] — New Moon
Extension Activities

Students could...

- complete extra number pattern worksheets.
- create their own number patterns and try to stump a classmate.
- learn about a form of geometric patterns known as tessellations and create their own using paper and pencil, scissors, or a computer.
- write their own poems and identify the rhyme scheme.
- read poems then see if they can find the rhyme scheme.
- create a moon phases spinner which has all of the phases in order but only allows them to see one phase at a time.
- complete an arts and crafts project such as weaving to create patterns.
Each row has a pattern. Write numbers in the blank spaces to match the pattern.

1. 23 24 26 29

2. 73 75 77

3. 3 6 9

4. 1 1 2 2 3

5. 12 22 32 42

6. 10 30 50
NUMBER PATTERNS

Find each pattern. Fill in the missing numbers.

1. 2 4 8 12

2. 3 6 15

3. 17 27 47

4. 21 23 25

5. 11 33 55 66

6. 85 80 75 70

7. 101 303 707

8. 12 23 34

9. 1 8 15 22 29 36

10. 7 16 25 34 43
Sequence Patterns

Look at the following sequences. Decide what the next two numbers should be. Write those numbers on the lines.

1. 3, 5, 7, 9, _____, _____

2. 5, 10, 15, 20, _____, _____

3. 90, 85, 80, 75, _____, _____

4. 4, 10, 16, 22, _____, _____

5. 26, 24, 22, 20, _____, _____

6. 2, 5, 4, 7, 6, _____, _____

7. 25, 30, 40, 45, 55, _____, _____

8. 14, 16, 13, 15, 12, _____, _____

9. 4, 9, 14, 19, 24, _____, _____

10. 100, 80, 85, 65, 70, _____, _____
Write Your Own Sequence

Read the rule then write a sequence that follows the rule.

1. Add 7

_____, _______, _______, _______, _______, ...

2. Subtract 3

_____, _______, _______, _______, _______, ...

3. Add 2, Subtract 5

25, _______, _______, _______, _______, ...

4. Add 6, Add 9

_____, _______, _______, _______, _______, ...

5. Write your own rule: ____________________________

Use your rule to write a sequence:

_____, _______, _______, _______, _______, ...
Resources


Human Subjects Research Application

Protocol Title: Patterns in Education: An Examination of Gifted and Talented Instruction

Anticipated project dates: begin August 2007 end December 2007

Principal Investigator: Courtney Smith
Rank: Undergraduate
Department: Elementary Education
Email: cdsmith2@bsu.edu

PI's address to which all correspondence will be sent:
31654 U.S. 20 New Carlisle, IN 46552
Telephone: (574) 220-6421

If this project is funded or if the investigator is seeking funding, list the agency(s) and/or source(s):

To comply with the federally mandated educational requirement, you (and all of the key personnel for this project – including faculty advisor/sponsor) must have completed the on-line tutorial on the protection of human subjects. A printout of the computer-generated certificate indicating your successful completion of this tutorial must be either attached to this application or be on record in the Office of Academic Research and Sponsored Programs. Have you and all key personnel completed this online tutorial? ☐ Yes ☐ No

IRB Assurance Statement
I have read and understand Ball State University's Policy for the Protection of Human Subjects in Research as stated in the Faculty and Professional Personnel Handbook and I agree:

a) to accept responsibility for the scientific and ethical conduct of this research study;
b) to obtain IRB approval prior to revising or altering the research protocol or the approved Informed Consent text;
c) to immediately report to the IRB any serious adverse reactions and/or unanticipated effects on subjects which occur as the result of this study.

Signature of Principal Investigator
05/10/07

Faculty Advisor/Sponsor Assurance Statement
As the Faculty Advisor/Sponsor, I certify that I have reviewed this protocol and affirm the merit of this research project and the competency of the investigator(s) to conduct the project. (A signature is required for all student research projects, and for all persons not affiliated with Ball State University.)

Signature
07/02/07
Print/Type of Faculty Mentor name

For IRB use:
Expeditied Review: Protocol Information

Human Subjects Research Application

List all persons, other than the PI, who will have a role in the research project (include additional sheet of paper if necessary):

Name: Rebecca Pierce Rank: Faculty Department: Mathematics
Responsibilities: Faculty Advisor/Sponsor

Name: Emily Kappa Rank: Undergraduate Department: Elementary Education
Responsibilities: Research Team Member

Name: __________________________ Rank: Other Department: __________________________
Responsibilities: __________________________

Name: __________________________ Rank: Other Department: __________________________
Responsibilities: __________________________

Name: __________________________ Rank: Other Department: __________________________
Responsibilities: __________________________

Description of subject population:

Number of Subjects: 30-45 Gender of Subjects: Female & Male Age Ranges: 8-10

Check all categories that apply to the subjects:

- Cognitively Impaired
- Minors (individual under age 18 years)
- Normal Healthy Volunteers
- Patients/ Clients
- Other, explain: __________________________

Will any information pertaining to the research be withheld from the subjects (i.e., as in a deception study)? ☐ Yes | ☑ No

If yes, for what purpose? __________________________

List the location(s) where the research will be conducted:

Storer Elementary School and Sycamore Elementary School

If an advertisement(s) will be used to recruit subjects, indicate the format(s) to be used:

☐ Flyer ☐ Radio
☐ Newspaper ☐ Television (e.g., public access channel)
☐ Electronic Media, describe: __________________________
☐ Other, describe: __________________________

Attach copies of all advertisements to the protocol
Expedited Review: Protocol Information (continued)

Human Subjects Research Application

If any part of the research is to be conducted at another institution with a collaborator, provide the following information for that person:

Name: ____________________________
Title: ____________________________
email: ____________________________
Address: __________________________
Telephone: _________________________

If any part of the research is to be conducted at an institution, or in conjunction with another organization, other than Ball State University, provide the name and contact information for a person who can give permission to conduct the research (Generally, this will be the person who will write the letter of permission to conduct the research):

Name: Ingrid Grubb
Title: Principal, Storer Elementary
email: igrubmuncie.k12.in.us
Address: 3211 W. Mansfield Drive
         Muncie, IN 47304
Telephone: (765) 747-5360
If any part of the research is to be conducted at another institution with a collaborator, provide the following information for that person:

Name: ____________________________
Title: ____________________________
email: ____________________________
Address: _________________________
Telephone: ________________________

If any part of the research is to be conducted at an institution, or in conjunction with another organization, other than Ball State University, provide the name and contact information for a person who can give permission to conduct the research (Generally, this will be the person who will write the letter of permission to conduct the research):

Name: Karie Mize
Title: Principal, Sycamore Elementary School
email: kmize@avon.k12.in.us
Address: 7878 East County Road 100 North
Avon, IN 46123
Telephone: (317) 272-3136
**Expedited Review : Print & Next Steps**

*Human Subjects Research Application*

<table>
<thead>
<tr>
<th><strong>Next Steps:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Once you have completed this interactive form, click the print button lower left.</td>
</tr>
<tr>
<td>B. Attach the written protocol and the necessary NIH certification(s) of completion of the online tutorial.</td>
</tr>
<tr>
<td>C. Obtain the appropriate signature(s).</td>
</tr>
<tr>
<td>D. Send original (including the application, protocol plus any additional materials) and five copies to: IRB, Office of Academic Research and Sponsored Programs, Ball State University, 2100 W. Riverside Ave., Muncie, IN 47306.</td>
</tr>
</tbody>
</table>
Protocol

Patterns in Education: An Examination of Gifted and Talented Instruction

A study of gifted and talented education will be performed in an attempt to provide pre-service teachers as well as practicing teachers with a look at ways they can improve instruction for gifted and talented students in an inclusive classroom. To do this a study will be performed which will juxtapose education in a gifted and talented third grade class to instruction in an all-inclusive third grade class. The study will focus on the differences between the level of questions that teachers can ask students, the responses the students provide, and the overall progression of the lesson.

To complete this study two classes of third grade students, one at Storer Elementary School and one at Sycamore Elementary School, will be taught the same lesson and will be observed throughout the course of the lesson. Observations will be made in each classroom using a video camera that will tape record the lesson being taught. Before tape recording begins, all children in both classrooms must return a consent form that is signed by both the student and his/her parent. This form will give the principal researcher permission to use their child’s comments in a video. After the recordings have been made, the researcher will take clips from the recordings to create a short movie that will compare the differences between gifted and talented education in an inclusive classroom to gifted and talented education in a classroom that is grouped according to ability.
To Whom It May Concern,

Attached is a copy of my completed narrative form. Please let me know if you need anything else in order for my application to be processed.

Courtney Smith
**Section I – Title, Purpose of the Study and Rationale**

1.1 Title: Patterns in Education: An Examination of Gifted and Talented Instruction

1.2 **Purpose of the Study:** This study will determine benefits and disadvantages of placing gifted and talented students in a contained classroom. Through action research, this study will determine which environment, a mixed ability classroom or a self-contained gifted and talented classroom, is more beneficial for gifted and talented students. The data garnered from this study will also lead to the development of suggestions that will help teachers in mixed ability classrooms to adequately challenge their gifted and talented students. Video recordings will also be compiled to demonstrate to teachers the strategies they can use in their classroom to help them challenge gifted and talented students.

1.3 **Rationale:** Many school systems across the country are moving away from grouping students by ability and are moving towards all-inclusive, mixed ability classrooms. While this may benefit some students, it is often detrimental to gifted and talented students. This study will look at gifted and talented students in two different environments in order to develop a list of recommendations that teachers can implement into their classrooms. These recommendations will help teachers differentiate instruction so that they can meet the needs of all students.

**Section II – Description of Subject Population**

2.1 **Number of Subjects:** This study will involve approximately 45 subjects.

2.2 **Describe the Subject Population:** This research will be conducted using a population that consists of 45 third grade students. These students will be between eight and nine years old. The students will be observed in two different classrooms: a gifted and talented classroom in the Muncie Community Schools and a mixed ability classroom in the Avon Community Schools. The study will look at both males and females who are from different ethnic backgrounds. Since the study focuses on developing suggestions for teachers, the study must focus on and take place in an actual classroom.

2.3 **Describe any specified inclusion/exclusion criteria:** In order to be a participant in the study, students must be in one of the two classes that will take part in the study. Students who are not in either Mrs. Eden’s classroom at Storer Elementary (Muncie Community Schools) or Mrs. Cray’s classroom at Sycamore Elementary (Avon Community Schools) will not be allowed to participate in the study. Students and their parents must agree to participate in the study for their actions to be considered and reviewed by the researcher. If either the student and/or the parent do not want the child to participate, then the child will be excluded from the study. The parents or child can choose to withdraw from the study at any time.

**Section III – Subject Recruitment**
3.1 Describe the method of subject recruitment: Each student in Mrs. Eden's and Mrs. Cray's third grade classrooms, will be given a permission letter to take home to their parents. This letter will give the children and the parents the opportunity to choose whether or not the student would like to participate in the study. A copy of the informed consent letter is attached for review.

Section IV – Methods and Procedures

4.1 Describe the methods and procedures to be used: Each student in both classrooms will be taught the same ten lessons about patterns. These lessons will look at patterns in many venues, i.e. nature, math, literature, as well as a variety of other patterns. The lessons will be taught over the course of a month. One lesson will be taught every Monday, Wednesday, and Friday. The study will take place in each classroom. The researcher will study the students using first hand observations and video recordings of the student's participation in the lessons. Since the research will be conducted by the student teacher that is in each of the classrooms for the semester, the study will only involve observations made during the ten 50-minute lessons. Video recordings of the students will only be viewed by the primary researcher. However, parents of the student may grant permission for the researcher to use specific video clips in a short video that assesses the best ways to meet the needs of gifted and talented students in the classroom.

Section V – Anonymity/Confidentiality of Data

5.1 Describe how data will be collected and stored: Data collected for this study will be from video recordings. The researcher will use the recordings to make observations about the benefits of gifted and talented education in elementary schools. Video recordings will only be viewed by the primary researcher unless the parent allows footage of the child to be used in the creation of a short video. These video recordings will be stored on Mini-DVDs which can only be played using a Mini-DVD compatible camcorder or a Mini-DVD player. Once transferred to a computer they will be stored on the researcher's hard drive. This can only be accessed with the proper password. Since there are many different precautions being taken, the data collected will be securely stored.

Section VI – Potential Risks and Benefits

6.1 Describe the potential risks and discomforts: The only foreseeable discomfort that students will encounter from participating in this research is related to filming. Some students may notice an increased sense of anxiety about being filmed. While this may not be the most desirable situation, most students will be able to successfully deal with the discomfort. If the student is not comfortable with being taped, the student can choose to be excluded from the study.
6.2 Describe how the risks will be minimized: In order to minimize the risk, the video camera will be placed in an inconspicuous corner of the room. This will allow the video camera to record most of the lesson while also preventing students from focusing on the video camera during the lesson.

6.3 Describe the potential benefits: This research will help future gifted and talented students in a variety of classrooms. Teachers that implement the suggestions from this study will be able to more adequately serve the gifted and talented students in their classrooms. The intent is to help the students learn more and increase their achievement scores across the board.

Section VII – Subject Incentives/Inducements to Participate

7.1 Describe any inducements/incentives to participate that will be offered to the subject: This section is not applicable to this study.

Section VIII – Other Financial Considerations

8.1 Describe any financial expense to the subject: This section is not applicable to this study.

8.2 Describe any provisions for compensation for research-related injury: This section is not applicable to this study.

Section IX – Informed Consent

9.1 Informed Consent Document: Please refer to the attached sheets for the informed consent documents that both the parents and the students will be required to read and sign.

Section X – Attach Additional Materials

10.1 Additional Materials: Attached is a copy of the letter that will be submitted to the principal of each elementary school and the teacher of each of the classrooms. Each principal and teacher will be required to sign off on the letter thereby giving their approval for the action research to take place in their school and their classroom.
Informed Consent Document

Dear parents and guardians,

My name is Courtney Smith and I am student teaching in your child’s classroom during the fall semester. I am currently a Senior Honors College student at Ball State University. Throughout the semester I will also be working on my Honors Thesis project entitled “Patterns in Education: An Examination of Gifted and Talented Instruction.” For my project, I will be investigating the differences between a gifted and talented classroom (your child’s ELP class) and a third grade general education classroom. In order to compare the two classrooms, I would like to video record lessons that I will be teaching to your students. These lessons will cover a span of approximately four weeks. I will also be video recording similar lessons being taught in a third grade general education classroom. I will use these video recordings to create a short video that can be shown to teachers. This video will provide teachers with several recommendations for ways to challenge gifted and talented students in a general education classroom. As school systems across the country continue moving away from grouping students by ability and moving towards inclusive mixed ability classrooms it is important that teachers be made aware of ways that they can address the needs of gifted and talented students in their daily lessons.

In order to video tape your student’s participation in the lesson, I will need a signed statement of consent which can be found at the bottom of this form. Please note that participation in this study is completely voluntary and will not have an impact on your child’s academic evaluation. If you choose to sign the consent form, please remember that you may also withdraw your child from the study at any point in time. If
you have any questions regarding the study you can contact me at the e-mail address below. Thank you for your time and I look forward to working with your child throughout the semester.

Sincerely,

Miss Courtney Smith  
Ball State University  
cdsmith2@bsu.edu  
(765) 747-5360

Faculty Mentor:  
Dr. Rebecca Pierce  
Associate Professor of Mathematical Science  
Ball State University  
2000 W. University Ave. RB 436  
Muncie, IN 47306  
(765) 285-8208  
rpierce@bsu.edu

I give consent for my child, ________________________________ to be video taped for Miss Smith’s study.

I would prefer for my child, ________________________________ to be excluded from Miss Smith’s study.

__________________________________________  __________________________
Signature                                            Date
Dear Parents and Guardians,

My name is Miss Courtney Smith and I am currently student teaching in Muncie, Indiana. I am currently a Senior Honors College student at Ball State University.

Throughout the semester I will be working on my Honors Thesis project entitled Patterns in Education: An Examination of Gifted and Talented Instruction. For my project I will be investigating the differences between a gifted and talented classroom and a third grade general education classroom (your child's classroom at Sycamore Elementary). In order to compare the two classrooms I would like to video record lessons that Miss Emily Kupps will be teaching to your students. These lessons will cover a span of approximately four weeks. I will also be video recording similar lessons I will be teaching in a third grade gifted and talented classroom. I will use these video recordings to create a short video that can be shown to teachers. This video will provide teachers with several recommendations for ways to challenge gifted and talented students in a general education classroom. As school systems across the country continue moving away from grouping students by ability and moving towards inclusive mixed ability classrooms it is important that teachers be made aware of ways that they can address the needs of gifted and talented students in their daily lessons. This project is designed to do just that.

In order to video tape your student's participation in the lesson, I will need a signed statement of consent which can be found at the bottom of this form. Please note that participation in this study is completely voluntary and will not have an impact on your child's academic evaluation. If you choose to sign the consent form please remember that you may also withdraw your child from the study at any point in time. If
you have any questions regarding the study you can contact Miss Kapps or you can

contact me using the e-mail address found below. Thank you so much for your time.

Sincerely,

Miss Courtney Smith
Ball State University
cdsmit2@bsu.edu
(765) 247-5360

Faculty Mentor:
Dr. Rebecca Pierce
Associate Professor of Mathematical Science
Ball State University
2000 W. University Ave., RB 436
Muncie, IN 47306
(765) 285-8208
rtpierce@bsu.edu

---------------------------------------------------------------
I give consent for my child, ...................................................
to be video taped for Miss Smith's study.

---------------------------------------------------------------
I would prefer for my child, ...................................................
to be excluded from Miss Smith's study.

---------------------------------------------------------------

Signature                       Date
Dear Mrs. Grubb,

My name is Courtney Smith and I am student teaching in Mrs. Edell's third grade ELP class here at Storer Elementary. While I am student teaching I will also be working on my Honors Thesis project entitled Patterns in Education: An Examination of Gifted and Talented Instruction. For my project I will be comparing a third grade gifted and talented classroom to a third grade general education classroom. To compare the two rooms I will be video taping similar lessons taught to each class. I plan to use this comparison to create a video that will show teachers how they can adequately challenge gifted and talented students in their classroom. I wanted to make you aware of the investigation that I will be doing while at your school and provide you with a copy of the letter that I plan to send home to parents. Please let me know if you have any questions or concerns about my project.

Sincerely,

Miss Courtney Smith
Ball State University
csmith2@bsu.edu

Faculty Mentor:
Dr. Rebecca Pierce
Associate Professor of Mathematical Science
Ball State University
2000 W. University Ave., RB 436
Muncie, IN 47306
(765) 285-8298
rpierce@bsu.edu
Dear Mrs. Mize,

My name is Courtney Smith and I am student teaching in a third grade classroom at Storer Elementary School in Muncie, Indiana. While I am student teaching I will also be working on my Honors Thesis project entitled Patterns in Education: An Examination of Gifted and Talented Instruction. For my project I will be comparing a third grade gifted and talented classroom to a third grade general education classroom. I would like to compare the class I will be working with to Mrs. Cray’s class at your elementary school in Avon. To compare the two rooms I will be video taping similar lessons taught to each class by myself and Miss Kapps, a student teacher at Sycamore Elementary. I plan to use this comparison to create a video that will show teachers how they can adequately challenge gifted and talented students in their general education classrooms. I wanted to make you aware of the investigation that I will be doing while at your school and provide you with a copy of the letter that I plan to send home to parents. Please let me know if you have any questions or concerns about my project.

Sincerely,

Miss Courtney Smith
Ball State University
csmith2@bsu.edu

Faculty Mentor:
Dr. Rebecca Pierce
Associate Professor of Mathematical Science
Ball State University
2000 W. University Ave. RB 436
Muncie, IN 47306
(765) 285-8208
rpierce@bsu.edu

Deleted: Courtney Smith (574)220-6421
csmith2@bsu.edu
Faculty Mentor: Dr. Rebecca Pierce
Associate Professor of Mathematical Science
Ball State University
2000 W. University Ave. RB 436
Muncie, IN 47306
(765) 285-8208
rpierce@bsu.edu
The Institutional Review Board began its review of the above protocol on September 12, 2007. We were unable to perform a complete review of your protocol and ask for additional information so that it may be reviewed further. We would appreciate your forwarding the information requested below to the IRB at Academic Research & Sponsored Programs (2100 W. Riverside Avenue) for review and approval before beginning your project. If you have any questions regarding this request, please contact the IRB Chair, Dr. Leonard Kaminsky, School of Physical Education, Sport and Exercise Science (285-4044), or the ex officio member of the IRB, Melanie L. Morris, in Academic Research & Sponsored Programs (285-5070). Thank you.

Submit five copies of the requested information, with changes/corrections highlighted, for IRB review.

To complete the review of the above protocol, the following information must provided:

1. Please provide a more detailed description of your faculty advisor's responsibilities with regard to this study (e.g. assisting with data collection, analyzing data, recruitment, limited to general oversight, available for questions from the PI, etc.) on page 2 of the application form. Please also provide a description of the responsibilities of the other Key Personnel listed on page 2 of the application form, if these individuals will have access to subjects or to their identifiable data. If they will not have such access, they may be removed from the list of Key Personnel. We offer the suggestion that it is sometimes helpful to seek consultation with other faculty members/researchers who also have experience conducting research in schools for additional assistance with planning and conducting studies with this young population.

2. Please provide letters from individuals at Storer and Sycamore Elementary Schools who have the authority to grant you permission to perform your study at their institution or organization.

3. Please provide additional information about the purpose and rationale for this study in Section I of the narrative. We are unable to gauge the value of this research without a discussion of the need for the research (e.g., how this study is likely to remedy deficiencies in the knowledge base for this area or increase understanding of this area), including a concise description of previous work in the field. The IRB must be able to evaluate potential benefits of the study versus risks to subjects in order to review proposed research.

4. In Section IV, please clarify what non-participating students will do during the conduct of the study and/or how they will be excluded from data collection and video/audio recording. Please ensure
that students are not, in effect, punished for not participating in the study by being excluded from significant portions of lessons or activities.

5. Also in Section IV, please clarify who will be teaching the lessons that will be recorded. If the student teachers in the classrooms will be teaching the lessons, please clarify if these student teachers will also be assigning grades for work completed during or related to these lessons. Please provide more information regarding the lessons to be taught, including whether the lessons taught in both of the classrooms will be the same. Please also clarify what types of data will be collected during the classroom observations — what information is of interest for this study?

6. In Sections IV and V, you state that the recordings will only be viewed by the primary researcher. However, it may be reasonable to assume assistance from your faculty advisor for this study may require his/her access to the data. Therefore, please revise the statement to reflect that members of the research team will have access to the data, instead of limiting access to the PI. We recommend including a statement in your Informed Consent document to the effect of, "Only members of the research team will have access to your child's data."

7. In Section V, please clarify where the computer upon which data will be stored is located and how data will be protected on the computer (e.g., firewall, not connected to the internet, etc.). Please also clarify where the mini-DVDs will be stored, how long they will be retained, and if/when they will be erased or destroyed after the data have been transferred to the computer.

8. In the Informed Consent document, please include a statement to the effect of, "For questions about your rights as a research subject, please contact Melanie L. Morris, Coordinator of Research Compliance, Office of Academic Research and Sponsored Programs, Ball State University, Muncie, IN 47306, (765) 285-5070, irb@bsu.edu." Please also include a statement and signature/date line for students to provide assent for their participation in the study, as the IRB finds that children ages 8-10 should be able to provide assent for this study (you may view a sample of a child assent statement at http://www.bsu.edu/irb/media/html/sampleconsentpermis.doc).

9. Please clarify how parents will indicate their permission for use of the video recordings to create the demonstration video referenced in the narrative, as it is unclear in the parental permission form if parents are considering the classroom research alone or also the demonstration video to be made.

If this request affects your project dates, please revise them appropriately. Also, reference the above identification number (IRB #) in any communication to the IRB regarding this project. Please note that approval of this study is not conferred until all of the above have been submitted and approved by the IRB.

pc: Rebecca Pierce, Mathematical Sciences
Human Subjects Research Application

Protocol title: Patterns in Education: An Examination of Gifted and Talented Instruction


Principal Investigator: Courtney Smith E-mail: cdsmith2@bsu.edu
Department: Elementary Education Telephone: 574-220-8421

(check all that apply) □ Faculty/Staff □ Graduate student □ Undergraduate student □ Unaffiliated

(If the PI is a student researcher or not affiliated with Ball State University, a Faculty Sponsor must be listed below.)

Faculty Sponsor: Rebecca Pierce E-mail: rpierce@bsu.edu
Department: Mathematics Telephone: 765-285-8208

If this project is funded or if the investigator is seeking funding, list the agency(s) and/or sources.
(If the title of the grant application differs from the title of the IRB protocol, also specify the grant application title.)

To comply with the federally-mandated educational requirement, you (and all Key Personnel for this project – including the faculty advisor/sponsor) must have completed the online tutorial on the protection of human subjects. A copy of the computer-generated certificate indicating your successful completion of this tutorial must either be uploaded with this application or be on record in the Office of Academic Research and Sponsored Programs.

Have you and all Key Personnel completed this online tutorial? ☐ Yes ☐ No

Principal Investigator Assurance Statement

I have read and understand Ball State University’s “Policy for the Protection of Human Subjects in Research” as stated in the Faculty and Professional Personnel Handbook, and I agree:

a) to accept responsibility for the scientific and ethical conduct of this research study,
b) to obtain IRB approval prior to revising or altering the research protocol or the approved Informed Consent text, and
c) to report immediately to the IRB any serious adverse events and/or unanticipated problems which occur as a result of this study.

The Principal Investigator must electronically sign this study prior to submitting the protocol to the IRB for review. When you sign this study as the Principal Investigator, you are also agreeing to the terms in the Principal Investigator Assurance Statement above.
Faculty Sponsor Assurance Statement
As the Faculty Sponsor for this study, I certify that I have reviewed this protocol and affirm the merit of this research project and the competency of the investigator(s) to conduct the project. My involvement in this study is as follows (check one option):

- I will be involved in this project. My name is listed and my responsibilities (described in the Key Personnel section) include supervision and oversight of this project.

- I will be involved in this project. My name is listed and my responsibilities (described in the Key Personnel section) in this project are limited (e.g., data analysis only). I affirm that this investigator has the competency to conduct this research study without my supervision or that of any other faculty or staff member of Ball State University.

- I will not be involved in any aspect of this project (including data collection). However, I have reviewed this protocol and the investigator's research experience and expertise. I affirm that this investigator has the competency to conduct this research study without my supervision or that of any other faculty or staff member of Ball State University.

A Faculty Sponsor must electronically sign this study for all student research projects and for all persons not affiliated with Ball State University before the protocol is submitted to the IRB for review. When you sign this study as the Faculty Sponsor, you are also agreeing to the terms in the Faculty Sponsor Assurance Statement above and accepting responsibility for ensuring that the terms of the Principal Investigator Assurance Statement are met.

Key Personnel
List all persons, other than the PI, who will have a role in the research project (refer to an attachment if necessary):

<table>
<thead>
<tr>
<th>Name</th>
<th>Rebecca Pierce</th>
<th>Faculty/Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td>Mathematics</td>
<td></td>
</tr>
<tr>
<td>Responsibilities</td>
<td>University Supervisor, General oversight, Available for questions from the PI</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Allison Krisch</th>
<th>Undergraduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td>Elementary Education</td>
<td></td>
</tr>
<tr>
<td>Responsibilities</td>
<td>Student teacher for Mrs. White's 3rd grade class</td>
<td></td>
</tr>
</tbody>
</table>

Select one
Subject Population

Check all categories that apply to the subjects:

- Cognitively impaired
- Minors (individual under age 18 years)
- Normal healthy volunteers
- Patients/clients
- Other, explain:

Will information pertaining to the research be withheld from subjects (incomplete disclosure/deception)?  
Yes  No
If yes, for what purpose?

List the location(s) where the research will be conducted: Storer Elementary School, Muncie, Indiana

If advertisements will be used to recruit subjects, indicate the format(s) to be used:

- Flyer
- Newspaper
- Electronic media, describe:
- Other, describe:

Collaborators and Permissions

If any part of the research is to be conducted at another institution with a collaborator, provide the following information for the research collaborator:

Name:
Title:
E-mail:
Address:

Telephone:

If any part of the research is to be conducted at an institution, or in conjunction with another organization, other than Ball State University, provide the name and contact information for a person who is authorized to give permission to conduct the research. Generally, this will be the person who would write a letter of permission to conduct the research.

Name:
Title:
E-mail:
Address:

Telephone:
To Whom It May Concern,

Attached is a copy of the revised protocol for my study. In blue I have highlighted the changes that were requested by the review board on October 15, 2007. In yellow I have highlighted the changes that were required because of Avon Community Schools request not to participate in the study. These changes, along with changes requested by the Institutional Review Board, are also indicated on the new application form which I have included.

The only change which the Institutional Review Board requested that I was unable to fulfill was to provide a note from the institution where the research is to take place. This note would give the school corporation’s consent for my study to take place in Muncie. In response to this request, I received a letter from the school corporation which said that I must get approval from the Institutional Review Board before receiving approval from Muncie Community Schools.

Sincerely,
Courtney Smith
Section I – Title, Purpose of the Study and Rationale

1.1 Title: Patterns in Education: An Examination of Gifted and Talented Instruction

1.2 Purpose of the Study: This study will determine several benefits and several disadvantages of placing gifted and talented students in a contained classroom. Through research, this study will determine which environment, a mixed ability classroom or a gifted and talented classroom, is more beneficial for gifted and talented students. The research garnered from this study will also lead to the development of suggestions that will help teachers in mixed ability classrooms to adequately challenge their gifted and talented students. Video recordings will also be compiled to show teachers strategies they can use in their classroom to help them challenge gifted and talented students.

1.3 Rationale: In the book, Critical Issues and Practices in Gifted Education: What the Research Says, Nancy M. Robinson (2008) writes in Chapter 13, “Within the field of giftedness, there is no less charted territory than the early years, with the exception of the elderly.” This statement illustrates the need for research regarding gifted and talented children. Currently many school systems across the country are moving away from grouping students by ability and are moving towards all-inclusive, mixed ability classrooms. While this may benefit some students, it is often detrimental to gifted and talented students. This study will look at gifted and talented students in two different environments in order to develop a list of recommendations that teachers can implement into their classrooms. These recommendations will help teachers differentiate instruction so that they can meet the needs of all students.

Section II – Description of Subject Population

2.1 Number of Subjects: This study will involve approximately 45 subjects.

2.2 Describe the Subject Population: This research will be conducted using a population that consists of 45 third grade students. These students will be between eight and nine years old. The students observed in this study will be from two different classrooms: a third-grade gifted and talented classroom and a third-grade mixed ability classroom at Storer Elementary School in the Muncie Community School Corporation. The study will look at both males and females who are from all different ethnic backgrounds. Since the study focuses on developing suggestions for teachers, the research must focus on and take place in an actual classroom.

2.3 Describe any specified inclusion/exclusion criteria: In order to be a participant in the study, students must be in one of the two classes that will take part in the research. Students who are not in either Mrs. Eden’s classroom or Mrs. White’s classroom will not be allowed to participate in the study. Students and their parents must also agree to participate in the study for their actions to be considered and reviewed by the researcher or the research team. If either the student or their parent does not want the child to participate, then the child will be excluded from the study. The parent or child can then choose to withdraw from the study at any time.

Section III – Subject Recruitment

3.1 Describe the method of subject recruitment: Each student in Mrs. Eden’s and Mrs. White’s third grade classrooms, will be given a permission letter to take home to their
parents. This letter will give the children and their parents the opportunity to choose whether or not the student would like to participate in the study. A copy of the informed consent letter is attached for review.

**Section IV – Methods and Procedures**

4.1 **Describe the methods and procedures to be used:** Each student in both classrooms will be taught the same ten lessons on patterns. These lessons will look at patterns in nature, patterns in math, patterns in literature, and a variety of other patterns. Lessons that focus on patterns in nature will look at patterns of the moon, patterns in the movement of the Earth (including day and night and the seasons), and patterns among the stars. Students will focus on numerical patterns, geometric patterns, and graphical patterns (such as rainfall amounts) when working with patterns in math. To address patterns in literature, students will look at different types of literature and identify the formats that they follow. Certain types of literature that will be covered include stories, poems, and persuasive writing. All of these lessons will be taught over the course of a month. One lesson will be taught every Monday, Wednesday, and Friday. All research will take place within the respective classroom. Each student teacher will be assigning grades based on the student’s written work. In this study, grades are not an essential piece for research. However, all student responses to open-ended questions will be reviewed by the primary researcher. They will help the researcher investigate the differences between gifted students in a mixed ability classroom and students in an exclusive classroom setting. The primary goal of this research is to analyze the differences between the types of questions and the depth in which a topic can be covered in the two distinct classrooms. The researcher will study the students based on her first hand observations and based on video recordings of the student’s participation in the lessons. Since the research will be conducted by the student teacher that is in each of the classrooms, the study will only involve observations made during the ten 50-minute lessons. Any student who is not permitted to be a part of the research will be moved to a table in a corner of the room that is not within range of the video camera. While in the corner of the room these students will be involved in the same lesson as the rest of the students. The only difference will be that their responses will not be considered or utilized when creating the video or the list of teacher recommendations. Video recordings of the students will only be viewed by members of the research team unless the parents of the student involved in specific video clips permit the researcher to use the footage in a short video that assesses the best ways to meet the needs of gifted and talented students in the classroom.

**Section V – Anonymity/Confidentiality of Data**

5.1 **Describe how data will be collected and stored:** All data used in this study will be recorded via video recordings. The researcher will then use this recording to make observations about the benefits of gifted and talented education in elementary schools. Video recordings will only be viewed by members of the research team unless the parent allows footage of the child to be used in the creation of a short video. These video recordings will be stored on Mini-DVDs which can only be played using a Mini-DVD compatible camcorder or a Mini-DVD player. Once transferred to a computer they will be stored on the researcher’s hard drive. This can only be accessed with the proper password. While not in use, the computer will be stored in a container with a
Since there are many different precautions being taken, the data collected will be securely stored.

Section VI – Potential Risks and Benefits

6.1 **Describe the potential risks and discomforts:** The only foreseeable discomfort that students will encounter from participating in this research is related to filming. Some students may notice an increased sense of anxiety about being filmed. While this may not be the most desirable situation, most students will be able to successfully deal with the discomfort. If the student is not comfortable with being taped, the student can choose to be excluded from the study.

6.2 **Describe how the risks will be minimized:** In order to minimize the risk, the video camera will be placed in an inconspicuous corner of the room. This will allow the video camera to record most of the lesson while also preventing students from focusing on the video camera during the lesson.

6.3 **Describe the potential benefits:** This research will hopefully help future gifted and talented students in a variety of classrooms. Teachers that choose to implement the suggestions yielded by this study will hopefully be able to more adequately serve the gifted and talented students in their classrooms. This will help them to learn more and will hopefully increase their achievement scores across the board.

Section VII – Subject Incentives/Inducements to Participate

7.1 **Describe any inducements/incentives to participate that will be offered to the subject:** This section is not applicable to this study.

Section VIII – Other Financial Considerations

8.1 **Describe any financial expense to the subject:** This section is not applicable to this study.

8.2 **Describe any provisions for compensation for research-related injury:** This section is not applicable to this study.

Section IX – Informed Consent

9.1 **Informed Consent Document:** Please refer to the attached sheets for the informed consent documents that both the parents and the students will be required to read and sign.
Section X – Attach Additional Materials

10.1 Additional Materials: Attached is a copy of the letter that will be submitted to the principal of the elementary school and the teacher of each of the classrooms. The principal and each of the teachers will be required to sign off on the letter thereby giving their approval for the research to take place in their school and their classroom.
Informed Consent Document

Dear Parents and Guardians,

My name is Miss Courtney Smith and last semester I student taught in your child’s classroom. I am currently a senior Honors College student at Ball State University. Throughout the spring semester I will be working on my Honors Thesis project entitled Patterns in Education: An Examination of Gifted and Talented Instruction. For my project I will be researching the differences between a gifted and talented classroom (your child’s ELP class) and a third grade general education classroom. In order to compare the two classrooms I would like to video record lessons that I will be teaching to your students. These lessons will cover a span of approximately four weeks. I will also be video recording similar lessons that are being taught in a third grade general education classroom. I will use these video recordings to create a short video that can be shown to teachers. Members of the research team will be the only ones that have access to the video recordings from each of the lessons. This video will provide teachers with several recommendations for ways to challenge gifted and talented students in a general education classroom. As school systems across the country continue moving away from grouping students by ability and moving towards all-inclusive mixed ability classrooms it is important that teachers be made aware of ways that they can address the needs of gifted and talented students in their daily lessons.

In order to video tape your student’s participation in the lesson and to use the video recordings in the video I will be creating for teachers, I will need a signed statement of consent which can be found at the bottom of this form. Please note that participation in this study is completely voluntary and will not have an impact on your child’s academic evaluation. If you choose to give consent for your child to participate please remember that you may withdraw your child from the study at any point in time. If you have any questions regarding the study you can contact me using the e-mail address found below. For questions about your rights as a research
subject, please contact Melanie L. Morris the Coordinator of Research Compliance. She can be contacted via mail at the Office of Academic Research and Sponsored Programs, Ball State University, Muncie, IN 47306, via phone at (765)285-5070, or via email at irb@bsu.edu. Thank you for your time and I look forward to working with your child throughout the upcoming semester.

Sincerely,

Miss Courtney Smith
Ball State University
cdsmith2@bsu.edu
(765) 747-5360

Faculty Mentor:
Dr. Rebecca Pierce
Associate Professor of Mathematical Science
Ball State University
2000 W. University Ave. RB 436
Muncie, IN 47306
(765) 285-8208
rpierce@bsu.edu

____________________________________________________________________________________

I give consent for my child, __________________________, to be video taped for Miss Smith's study.

I would prefer for my child, __________________________, to be excluded from Miss Smith's study.

____________________________________________________________________________________

Signature __________________________ Date __________________________

Student Consent

I, __________________________ agree to be video taped for Miss Smith’s study.

I, __________________________ do not wish to take part in Miss Smith’s study.

____________________________________________________________________________________

Signature __________________________ Date __________________________
Dear Parents and Families,

My name is Miss Courtney Smith and last semester I student taught at Storer Elementary. I am currently a senior Honors College student at Ball State University. Throughout the upcoming semester I will be working on my Honors Thesis project entitled Patterns in Education: An Examination of Gifted and Talented Instruction. For my project I will be investigating the differences between a gifted and talented classroom and a third grade general education classroom (your child’s classroom). In order to compare the two classrooms I would like to video record lessons that Miss Allison Krisch will be teaching to your students. These lessons will cover a span of approximately four weeks. I will also be video recording similar lessons I will be teaching in a third grade gifted and talented classroom. I will use these video recordings to create a short video that can be shown to teachers. Members of the research team will be the only ones that have access to the video recordings from each of the lessons. This video will provide teachers with several recommendations for ways to challenge gifted and talented students in a general education classroom. As school systems across the country continue moving away from grouping students by ability and moving towards inclusive mixed ability classrooms it is important that teachers be made aware of ways that they can address the needs of gifted and talented students in their daily lessons. This project is designed to do just that.

In order to video tape your student’s participation in the lesson and to use the video recordings in the video I will be creating for teachers, I will need a signed statement of consent which can be found at the bottom of this form. Please note that participation in this study is completely voluntary and will not have an impact on your child’s academic evaluation. If you choose to give consent for your child to participate please remember that you may withdraw your child from the study at any point in time. If you have any questions regarding the study you can contact Miss Krisch or you can contact me using the e-mail address found below. For questions...
about your rights as a research subject, please contact Melanie L. Morris the Coordinator of Research Compliance. She can be contacted via mail at the Office of Academic Research and Sponsored Programs, Ball State University, Muncie, IN 47306, via phone at (765)285-5070, or via email at irb@bsu.edu. Thank you so much for your time.

Sincerely,

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I give consent for my child, ________________________________,
to be video taped for Miss Smith’s study.

I would prefer for my child, ________________________________,
to be excluded from Miss Smith’s study.

_________________________  ____________________________
Signature                  Date

Student Consent

1. ______________________ agree to be video taped for Miss
   Smith’s study.

2. ______________________ do not wish to take part in Miss
   Smith’s study.

_________________________  ____________________________
Signature                  Date
Dear Mrs. Ingrid Grubb,

My name is Courtney Smith and I am an Honors College student at Ball State University. Last semester I student taught in Mrs. Eden’s third grade ELP class at Storer Elementary. This semester I will be working on my Honors Thesis project entitled Patterns in Education: An Examination of Gifted and Talented Instruction. For my project I will be comparing a third grade gifted and talented classroom to a third grade general education classroom. To compare the two rooms I will be video taping similar lessons taught to each class. I plan to use this comparison to create a video that will show teachers how they can adequately challenge gifted and talented students in their classroom. I wanted to make you aware of the investigation that I plan to complete at your school and provide you with a copy of the letter that I plan to send home to parents. Please let me know if you have any questions or concerns about my project.

Sincerely,

Miss Courtney Smith
Ball State University
cdsmith2@bsu.edu

Faculty Mentor:
Dr. Rebecca Pierce
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Ball State University
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The Institutional Review Board has approved your revision for the above protocol, effective January 30, 2008 through January 29, 2009. All research under this protocol must be conducted in accordance with the approved submission.

Editorial Notes:

1. Please obtain a letter from someone at the school granting you permission to conduct your study at the school and provide us a copy of it once you have received it.

As a reminder, it is the responsibility of the P.I. and/or faculty sponsor to inform the IRB in a timely manner:

- when the project is completed,
- if the project is to be continued beyond the approved end date,
- if the project is to be modified,
- if the project encounters problems, or
- if the project is discontinued.

Any of the above notifications should be addressed in writing and submitted electronically to the IRB (http://www.bsu.edu/irb). Please reference the IRB protocol number given above in any communication to the IRB regarding this project. Be sure to allow sufficient time for review and approval of requests for modification or continuation. If you have questions, please contact Melanie Morris at (765) 285-5070 or mlmorris@bsu.edu.

cc: Rebecca Pierce
January 10, 2008

Dr. Brad Oliver, Director of Professional Services  
Muncie Community Schools  
2501 Oakwood Ave  
Muncie, IN 47304

Dr. Brad Oliver,

My name is Courtney Smith and I am pursuing an Honors College degree at Ball State University. As a part of the Honors’ curriculum, I am required to complete a thesis paper. For my paper, I have chosen to prepare a comparison of gifted and talented education in a self-contained environment and gifted and talented education in an inclusive classroom. The goal of this study is to determine ways to better meet the needs of gifted and talented students in a general education classroom.

I have chosen Muncie Community Schools as the host for my study because of its unique Gifted and Talented education program and because I completed my student teaching at Storer last semester. For this study, I plan to compare the third grade ELP class to a third grade general education class at Storer elementary. This study will focus on approximately 40 students. To complete my research, I and another former Ball State University student teacher will teach four lessons in two respective classes. The four lessons taught to each class will be similar in scope and content. These lessons will be taught in Mrs. Judy Eden’s class and Mrs. Kim White’s class. In order to compare each of the classes, I will be video recording each of the lessons. These recordings will allow me to analyze the similarities and differences between the instruction in each of these classes. These similarities and differences will be the basis for my paper.

Upon completion of this study, I plan to create a list of ways that teachers can better serve and challenge gifted and talented students in their mixed ability classrooms. I will also create a short video illustrating for teachers the types of questions and activities that can and should be used to appropriately challenge gifted and talented students. This research should provide significant help to other teachers so that they can better reach all of the students in their classrooms.

Per your letter of January 7th, I am enclosing copies of the four lesson plans that will be taught to the students. These lesson plans are essential my instrument for the study. I am also enclosing a letter of approval from Ball State’s Institutional Review Board. Please contact if you require further information. I look forward to hearing from you soon.

Sincerely,

Miss Courtney Smith

Miss Courtney Smith  
210 E. Brooklyn Ct. Apt. # 21  
Muncie, IN 47303  
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ACADEMIC AFFAIRS
Office of Academic Research and Sponsored Programs

INSTITUTIONAL REVIEW BOARD

DATE: February 7, 2008
TO: Courtney Smith
FROM: Institutional Review Board
Leonard Kaminsky, Chair
Melanie L. Morris, Coordinator of Research Compliance

RE: IRB protocol # 82902-1
TITLE: Patterns in Education: An Examination of Gifted and Talented Instruction
SUBMISSION TYPE: Revision
ACTION: APPROVED
APPROVAL DATE: 1/30/2008
EXPIRATION DATE: 1/29/2009
REVIEW TYPE: Expedited

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cc: Rebecca Pierce
Introduction to Patterns: What is a Pattern?

Courtney Smith  
Introduction to Patterns  
Interdisciplinary - Focus: Mathematics (Geometric Patterns)  
Standard 6: Problem Solving  
Indicator: 3.6.1

Materials
1. Computers with Internet Access  
2. Sentence Strip Definitions: Pattern, Core  
3. Judy Clock  
4. Necklace  
5. Basket  
6. Deck of Playing Cards  
7. Calendar  
8. Wrapping Paper  
9. Ruler  
10. Striped Shirt  
11. Animals  
12. Notebook Paper

Objective
• When given a particular object, students will be able to work together to find a pattern.  
• Students will be able to define important terms such as pattern and core.

Motivation/Engagement
Have students Think-Pair-Share about the definition of the term pattern. Write the student's ideas/definitions on the board. These will be used later to help the class create a definition for the word pattern.

Goal for Learner
After completing the activity today, you will be able to define the term pattern and find common patterns in the world around you.

Content and Procedures
• Divide the class into groups of 2-4 students.  
• Give each group an object from the list of materials above.  
• Have each group find a pattern in the object they were given.  
• Share the patterns they found with the class.  
• Use these patterns to help create a good definition for the word pattern.  
• Introduce mathematics patterns by looking at the interactive video found at: http://www.linkslearning.org/Kids/1_Math/2_Illustrated_Lessons/5_Patterns/index.html  
• Have students complete activity as a class.

Practice
Students will practice what they know and learn about patterns when they complete the activities throughout the interactive video.
**Application**
Students will apply what they have learned about patterns in each of their future lessons.

**Evaluation of Student Learning**
The instructor will continuously and informally evaluate each student’s comprehension.

**Closure**
Have students identify patterns that they can think of in their everyday lives. Talk about why patterns are important.
Extending Numerical Patterns

Courtney Smith
Extending Numerical Patterns
Mathematics
Standard 6: Problem Solving
Indicator: 3.6.1

Materials
1. Pattern Review Worksheets and Overhead
2. 3 Bases and Home Plate
3. Game Cards
4. Patterns Worksheet

Objective
• Students will be able to extend arithmetic patterns.
• Students will be able to find the rule for a given pattern.

Motivation/Engagement
Review the definition of a pattern. In groups of 5 have students create patterns using numbers. Allow students to share them with their group's pattern with the class.

Goal for Learner
After completing this activity, you will be able to extend patterns using addition, subtraction, and multiplication. You will also be able to find the rules for a pattern.

Content and Procedures
• Review patterns with students using an overhead. Place emphasis on patterns that involve multiplication.
• After review, split class into two teams for Batter Up!
• Explain rules.
• Have one student draw a card and complete the pattern on the card. An incorrect answer results in an out. Points will be awarded based on a pre-determined difficulty of the question.
• After three outs or after every student on the team scores, the next team with get a chance to bat.
• After 30 minutes, the team with the most runs will win.

Practice
Students will practice extending numerical patterns when they play the game Batter Up!

Application
Students will apply what they have learned about extending numerical patterns when they complete the follow-up worksheet after the game.

Evaluation of Student Learning
The follow-up worksheet will be graded to determine student achievement.

Closure
Share some examples of real life situations where students may come across numerical patterns.
Growing Patterns

Courtney Smith
Growing Patterns
Mathematics
Standard 6: Problem Solving
Indicator: 3.6.1

Materials
1. One Grain of Rice
2. Calculators
3. Walk the Dog Overhead Transparency
4. Calculator Pattern Worksheet

Objective
• Students will use technological implements to help them solve complex mathematical problems.

Motivation/Engagement
Read the book *One Grain of Rice*. This book deals with doubling and focuses on growing patterns.

Goal for Learner
After completing this activity, you will be able to tell the difference between a growing pattern and a repeating pattern. You will also be able to extend a growing pattern.

Content and Procedures
• Present dog walking dilemma to students.
• Pose the question: Which is the best deal?
• Use overhead to figure out which deal is really better.
• Sing the song “The Green Grass Grew All Around”
• Find growing patterns in the song.
• Next use constant button on calculators to determine make the process easier.
• Do another example together as a class.

Practice
Students will practice using the constant key on the second example.

Application
Students will apply what they have learned when they complete the follow up activity.

Evaluation of Student Learning
The follow-up activity will be collected and graded.

Closure
Discuss what growing patterns students may see in real life.
Geometric Patterns

Courtney Smith
Geometric Patterns
Mathematics
Standard 4: Geometry
Indicators: 3.4.1 and 3.4.10
Standard 6: Problem Solving
Indicator: 3.6.1

Materials
1. Pattern Blocks
2. Overhead Projector
3. Pattern Cards
4. Perfect Patterns Worksheet

Objective
• Students will create patterns using pattern blocks.
• Students will label patterns to find patterns that are the same but may not look the same.

Motivation/Engagement
Give students a handful of pattern blocks. Have students create a pattern and share it with a classmate. Classmates should extend the pattern.

Goal for Learner
After completing the activity today, you will be able to create patterns that are the same even though they do not look the same.

Content and Procedures
• Place pattern blocks on the overhead in a pattern. Have a student help you extend the pattern.
• Do three or four of these together as a class.
• Label the blocks using letters.
• Do this for each example on the overhead.
• Next create a pattern that follows the ABAB pattern.
• Have two students share patterns that follow the ABAB pattern.
• Discuss how they may not look the same but the pattern is the same.
• Repeat the previous steps for the ABC and ABBC patterns.

Practice
To practice labeling patterns, students will play the pattern card game. They will draw a card and use pattern blocks to create the pattern shown on the card. The other person then has to guess the pattern. If they guess correctly, then they get the card. If they guess incorrectly then the player who created the pattern gets to keep the card.

Application
Students will apply what they have learned about patterns when they complete the Perfect Patterns worksheet.
**Evaluation of Student Learning**
The instructor will continuously and informally evaluate each student's understanding. The Perfect Patterns worksheet will also be graded.

**Closure**
Talk about places where you may see geometric patterns in real life (wrapping paper, fabrics, and wallpaper).
Patterns in Poetry

Courtney Smith
3rd Grade

Patterns in Poetry
English/Language Arts
Standard 3: Reading (Comprehension and Analysis of Literary Text)
Indicator: 3.3.1
Standard 7: Listening and Speaking (Skills, Strategies, and Applications)
Indicator: 3.7.9

Materials
1. Small Collection of Poems that Rhyme
2. Overhead Poems
3. List of Common Rhyming Words

Objective
• Students will find and label varying patterns in age appropriate poetry.

Motivation/Engagement
Hand out a different Shel Silverstein poem to each student. Give the student time to read their poem. Have them reread their poem and attempt to find patterns in their poem. Have a few volunteers share theirs with the class.

Goal for Learner
After looking at several poems, you will be able to determine the pattern found in each poem. You will even be able to write your own poem.

Content and Procedures
• Read a poem aloud to the class.
• Have students tell you what they think the poem means.
• Reread the poem and have students focus on what pattern they see in the poem.
• Place poem on overhead.
• Look at the words at the end of each line.
• Label the lines using the letters A, B, C, and so on for each different rhyme.
• Have students name the rhyme scheme for the poem.

Practice
Students will find the rhyme scheme for their poem in the motivation activity using letters.

Application
Students will write a rhyming poem that is 4 or more lines long. They will then find the rhyme scheme for their poem. Allow students to share theirs with the class.

Evaluation of Student Learning
The instructor will evaluate the student's ability to find the rhyme scheme when they write their own poems.
Closure
Share a favorite poem with the class and show students how they can quickly hear the pattern without writing it out.
Revolving and Rotating: Earth’s Movements - Day 1

Courtney Smith
Revolving and Rotating: Earth’s Movements
Science
Standard 3: The Physical Setting
Indicator: 3.3.1

Materials
1. Science Textbook
2. Science Worksheet for Lesson 1

Objective
1. When given a picture, students will be able to identify the season and the time of day in their city.
2. After reading Lesson 1 + 2, the student will be able to identify the cause of day and night, the seasons, and the length of a year.

Motivation/Engagement
Have students Think-Pair-Share about the following question:
• What causes night and day?

Goal for Learner
After completing this chapter, you will be able to explain why we have night and day, why the seasons change, and why a year is 365 days long.

Content and Procedures
• Preview title of Chapter 15: Patterns in the Sky
• Preview Chapter 15 Vocabulary on page 418 and 419
• Preview Lesson 1 title: What are some patterns that repeat everyday?
• Have students identify some patterns that repeat everyday
• Read Lesson 1
• Answer Lesson 1 questions during reading

Practice
Students will practice the information that they learn as they answer the questions that accompany chapter 1.

Application
Students will apply what they’ve learned on day 2.

Evaluation of Student Learning
Questions from Lesson 1 will be graded.

Closure
Have students describe the position of the Earth at this point during the day.
Revolving and Rotating: Earth's Movements - Day 2

Courtney Smith 3rd Grade
Revolving and Rotating: Earth's Movements
Science
Standard 3: The Physical Setting
Indicator: 3.3.1

Materials
1. Science Textbook
2. When the Earth Moves Booklet
3. Styrofoam Balls
4. Pipe Cleaners

Objective
1. When given a picture, students will be able to identify the season and the time of day in their city.
2. After reading Lesson 1 + 2, the student will be able to identify the cause of day and night, the seasons, and the length of a year.

Motivation/Engagement
Have students Think-Pair-Share about the following questions:
• What causes night and day?
• Why does the sun rise and set?

Goal for Learner
After completing this chapter, you will be able to explain why we have night and day, why the seasons change, and why a year is 365 days long.

Content and Procedures
• Review what students read in Lesson 1
• Review vocabulary terms: star, axis, and rotation
• Have students create a model of the Earth using Styrofoam balls and pipe cleaners
• Demonstrate Earth's rotation and tilt on its axis
• Read and color pages in "When Earth Moves" booklet that correspond to the terms axis and rotation

Practice
Students will practice the information that they learn in Lessons 1 when they complete "When the Earth Moves" booklet.

Application
Students will apply what they've learned when they model the axis, rotation, and revolution of the Earth using Styrofoam balls and pipe cleaners.

Evaluation of Student Learning
The teacher will observe students as they model the rotation of the Earth and as they answer verbal questions.
**Closure**

Have students describe the position of the Earth at this point in the year. Review these repeating patterns and discuss how they relate to our everyday lives.
Revolving and Rotating: Earth's Movements - Day 3

Courtney Smith
Revolving and Rotating: Earth's Movements
Science
Standard 3: The Physical Setting
Indicator: 3.3.1

3rd Grade

Materials
1. Science Textbook
2. SMART Board or Computer, Screen, and Projector
3. Computer with Internet Access and Projector
4. Science Worksheets
5. When the Earth Moves Booklet

Objective
1. When given a picture, students will be able to identify the season and the time of day in their city.
2. After reading Lesson 1 + 2, the student will be able to identify the cause of day and night, the seasons, and the length of a year.

Motivation/Engagement
Have students Think-Pair-Share about the following questions:
• Why is a year 365 days?
• Why do the seasons change?

Goal for Learner
After completing this chapter, you will be able to explain why we have night and day, why the seasons change, and why a year is 365 days long.

Content and Procedures
• Read Lesson 2 title: What patterns repeat every year?
• Have students predict what patterns repeat every year
• Preview Vocabulary term for Lesson 2: revolution
• Read Lesson 2
• Answer questions about Lesson 2 during reading

Practice
Students will practice the information that they learn in Lesson 2 when they answer questions.

Application
Students will apply what they learn in lesson 4.

Evaluation of Student Learning
Questions from Lesson 2 will be graded.

Closure
Have students describe the position of the Earth at this point in the year. Review these repeating patterns and discuss how they relate to our everyday lives.
Revolving and Rotating: Earth's Movements - Day 4

Courtney Smith
3rd Grade
Revolving and Rotating: Earth's Movements
Science
Standard 3: The Physical Setting
Indicator: 3.3.1

Materials
1. Science Textbook
2. SMART Board or Computer, Screen, and Projector
3. Computer with Internet Access and Projector
4. When the Earth Moves Booklet

Objective
1. When given a picture, students will be able to identify the season and the time of day in their city.
2. After reading Lesson 1 or 2, the student will be able to identify the cause of day and night, the seasons, and the length of a year.

Motivation/Engagement
Have students Think-Pair-Share about the following questions:
• Why is a year 365 days?
• Why do the seasons change?

Goal for Learner
After completing this chapter, you will be able to explain why we have night and day, why the seasons change, and why a year is 365 days long.

Content and Procedures
• Review what students learned in Lesson 2
• Model Earth's tilt on its axis, rotation, and revolution with Styrofoam models
• Model Earth's tilt on its axis, rotation, and revolution using simulations posted on the World Wide Web
• Read pages in When Earth Moves Booklet that correspond to revolution

Practice
Students will practice the information that they learn in Lesson 2 when they complete the "How the Earth Moves" booklet.

Application
Students will apply what they've learned when they answer verbal questions about the simulation.

Evaluation of Student Learning
Students will be given a sheet of pictures. They will have to decide what season it is and what time of day it is in the city that is pointed out in the picture.

Closure
Have students describe the position of the Earth at this point in the year. Review these repeating patterns and discuss how they relate to our everyday lives.
Moon Movement

Courtney Smith
Moon Movement
Science -
Standard 3: The Physical Setting
Indicators: 3.3.1

Materials
1. Science Textbook
2. Moon Phase Box
3. Large Styrofoam Ball (Half Black and Half White)
4. Lesson 3 Questions
5. Moon Phase Calendar
6. Moon Phase Worksheet

Objective
When given a picture of the moon, the student will be able to identify the phase.

Motivation/Engagement
Have students sit in a circle on the carpet. Have a styrofoam ball placed in the center of the circle. Give students a flipbook with 28 circles in it. Have students draw what they see from one spot in the circle. Have students rotate around the circle in order, visiting all 28 places. This will make a flipbook that shows the progression of the phases of the moon. After completing the flipbook have students predict what they just drew pictures of.

Goal for Learner
After completing this lesson you will be able to identify the phases of the moon and explain why the moon changes each night.

Content and Procedures
- Read the title of Lesson 3: Why does the Moon's Shape Change?
- Have students predict why it changes
- Preview vocabulary word: phase
- Read Lesson 3
- Answer questions as they read
- Have students look in the Moon Phase Box
- Watch simulation of the moon orbiting the Earth

Practice
For homework students will complete a worksheet by drawing the phases of the moon and naming the phases.

Application
Students will take home a calendar and observe the moon every night for a month.

Evaluation of Student Learning
Students will be graded on questions for Lesson 3
Moon Phase Calendar will be graded for completion
Closure
Review how this relates to the student’s lives.
Review how this relates to what students see in the night sky.
February 20, 2008

Courtney Smith
210 E. Brooklyn Court
Muncie, IN 47303

Dear Ms. Smith,

Thank you for your recent research proposal.

The Research Committee of Muncie Community Schools recently met and has voted to not recommend your study to the Superintendent of Schools for his approval. This decision is based on a number of factors, some of which may include but are not limited to:

- Purpose of the study.
- The extent to which students, teacher, parents, and/or administrators were asked to be involved with the study.
- The benefits of this study to Muncie Community Schools and/or the field of public education.

We apologize for any inconvenience this may cause you. Due to the high volume of requests we receive to conduct research in our schools, our committee must be very selective in making recommendations to the Superintendent.

We appreciate your interest in Muncie Community Schools.

Respectfully,

Brad E. Oliver, Ed.D.
Director of Professional Services

Cc: Dr. Marlin Creasy, Superintendent
    Mr. Steve Edwards, Assistant Superintendent