A Correlation of

to the

INDIANA Academic Standards Mathematics

Grade Five

G/M-266_G5

INTRODUCTION

This correlation demonstrates the alignment of content between ***Investigations in Number, Data, and Space*** and Indiana's Academic Standards-Mathematics, Final Draft dated March 12, 2009**.** Correlation page references are to the Teacher Edition Curriculum Units, Student Math Handbook and Student Activity Book. The Indiana Online Activities for Investigations are available on Pearson SuccessNet in English and Spanish. These activities are cited in the correlation by unit number and activity number. On SuccessNet, you can download each activity which consists of a teacher page and a student page. The teacher page contains related vocabulary, directions for teaching the content, suggested questions to promote discussion, examples of student responses, and differentiation support. These Indiana Activities are provided to give teachers additional support while teaching the Indiana Academic Standards for Mathematics.

> ***Investigations in Number, Data, and Space*** *is* a Kindergarten through Grade 5 mathematics curriculum designed to engage students in making sense of mathematical ideas. Six major goals guided the development of Investigations in Number, Data, and Space® curriculum. The curriculum is designed to:
>
> - Support students to make sense of mathematics and learn that they can be mathematical thinkers
> - Focus on computational fluency with whole number as a major goal of the elementary grades
> - Provide substantive work in important areas of mathematics—rational numbers, geometry, measurement, data, and early algebra—and connections among them
> - Emphasize reasoning about mathematical ideas
> - Communicate mathematics content and pedagogy to teachers
> - Engage the range of learners in understanding mathematics.

Underlying these goals are three guiding principles that are touchstones for the *Investigations ©2008 team* as they approach both students and teachers as agents of their own learning:

1. Students have mathematical ideas.
2. Teachers are engaged in ongoing learning about mathematics content, pedagogy and student learning.
3. Teachers collaborate with the students and curriculum materials to create the curriculum as enacted in the classroom.

Investigations is based on experience from research and practice. Based on that extensive classroom testing, the curriculum takes seriously the time students need to develop a strong conceptual foundation and skills based on that foundation. Each curriculum unit focuses on an area of content in depth, providing time for students to develop and practice ideas across a variety of activities and contexts that build on each other. An additional set of online lessons has been developed to address specific state standards. Daily guidelines for time spent on class sessions, Classroom Routines (K-3), and Ten-Minute Math (3-5) reflect the commitment to devoting adequate time to mathematics in each school day.

Investigations in Number, Data, and Space
to the
Indiana Academic Standards – Mathematics

Grade 5

Indiana Mathematics Standards	Investigations in Number, Data, and Space
GRADE 5	
Standard 1	
Number Sense and Computation	
5.1.1 Count, read, write, compare, and plot on a number line decimals to thousandths using words, models and expanded form.	**Unit 6:** 10–11, 12, 25, 27–28, 32–35, 39–42, 44–48, 79–80, 123–124
5.1.2 Compare and order fractions and decimals to thousandths by using the symbols for less than (<), equal to (=), and greater than (>).	**Online Activity:** Unit 4 Activity 82 **Online Activity:** Unit 6 Activity 63 Related content: **Unit 1:** 88 **Unit 4:** 64–69, 71–75, 77–80, 82–84, 86, 112–115, 117–120, 122–126 **Unit 6**: 39–42, 44–48, 50–58, 79–80
5.1.3 Identify and explain prime and composite numbers.	**Unit 1:** 10, 37–38, 78–79, 181
5.1.4 Use words, models, standard form and expanded form to represent place value of decimal numbers to thousandths	**Unit 6:** 10–12, 32–36, 92–95, 123–124
5.1.5 Solve problems involving multiplication and division of whole numbers fluently using a standard algorithmic approach and explain how to treat the remainders in division.	**Unit 1:** 71–74, 83–84, 86–90, 92–96, 98–99, 101–104, 106–107, 115–119, 127–130, 134–135, 137–140, 148–150, 186–187 **Unit 3:** 91–92 **Unit 7:** 12, 38–40, 59–61, 62–64, 70, 76–78, 94–95, 97–98, 104–105, 111–113, 134
5.1.6 Solve problems involving addition and subtraction of	
• decimals, including money;	**Unit 6:** 87–91, 93–96, 98–101, 103–106, 108–11, 113–114, 116

Indiana Mathematics Standards	Investigations in Number, Data, and Space
• fractions, including fractions with different denominators; and	**Unit 4:** 37–40, 95–100, 12–106, 108–111, 129–134, 136–138
• mixed numbers using a standard algorithmic approach.	**Unit 4:** 37–38, 136–138, 140–141
5.1.7 Solve problems involving the multiplication of fractions using a standard algorithmic approach. Explain the relationship of the product relative to the factors.	Students explain the relationship of the product relative to the factors on these pages. **Unit 1:** 31–33, 37–40, 42–47, 53–56, 58–60, 62–64, 154–155 **Unit 7:** 27–31, 33–36, 38–40
5.1.8 Construct and analyze line graphs and double bar graphs from data, including data collected through observations, surveys and experiments.	**Unit 8:** 11–12, 30, 34–40, 42–48 50–55, 57–60, 83–88, 90–96, 98–101, 103–105, 109, 116, 118, 121–123, 137–138 **Unit 9:** 69–71, 75
5.1.9 Perform simple experiments gathering data from a large number of trials and use data from experiments to predict the chance of future outcomes.	**Unit 9:** 53–58, 60–62, 64–67, 69–71, 73–75, 87–92, 94–97, 99–103, 105–108
Standard 2	
Algebra and Function	
5.2.1 Write and evaluate simple algebraic expressions.	**Unit 1:** 16, 49 **Unit 7**: 33, 38 **Unit 8:** 18–19, 41, 52–53, 69–74, 76–81, 83–85, 94–96, 130–131
5.2.2 Use two-dimensional coordinate grids to represent points in the first quadrant that fit linear equations and draw the line determined by the points.	**Unit 8:** 27–32, 34–40, 42–48, 50–55, 57–60, 90–96, 98–101, 103–104, 108–110, 120–123
Standard 3	
Geometry and Measurement	
5.3.1 Measure angles and describe angles in degrees.	**Unit 5:** 27–29, 36–38, 51–54, 58–61, 63–64, 137,163–164

Indiana Mathematics Standards	Investigations in Number, Data, and Space
5.3.2 Identify, classify and draw polygons and triangles (equilateral, isosceles, scalene, right, acute and obtuse triangles).	**Unit 5:**10, 25–30, 32–33, 35, 41, 43–44, 46–49, 51, 54–56, 59, 64, 79–80, 84–86, 90–93, 96–99, 100–103, 109–112, 137–138, 152
5.3.3 Describe the attributes (such as number of edges, vertices, and number of faces) of solids, including cubes, pyramids and cylinders.	**Unit 2:** 93–94, 96–98, 100–104, 126–127 ,
5.3.4 Identify and describe using words and pictures, transformations such as reflections, rotations and translations and use this knowledge to design and analyze simple tilings and tessellations.	**Unit 5:** 111–112, 115–123, 153–154
5.3.5 Develop and use the formulas for the perimeter and area of triangles, parallelograms and trapezoids using appropriate units for measures. Find the area of complex shapes by dividing them into basic shapes.	**Unit 5:** 11, 72–75, 77–78, 80–82, 84–88, 89–94, 96–99, 101–104, 125–126, 128, 130, 131,149–151 **Unit 8:** 13–14, 69–74, 83–88, 90–96, 103–105, 130–132
5.3.6 Develop and use the formulas for the surface area and volume of rectangular prisms using appropriate units for measures.	**Unit 2:** 26–30, 33–35, 38–40, 49–53, 55–56, 64–70, 72–76, 115–116
Process Standards	
Problem Solving	
• Build new mathematical knowledge through problem solving.	These are some of the many examples. **Unit 1:** 45–51, 62–64, 77–84, 101–107, 115–119, 127–130, 132–135 **Unit 4:** 24–26, 32–38, 44–51, 77–80, 82–84 **Unit 7:** 27–31, 51–52, 56–57, 69–74, 80–84, 86–87, 91–95, 97–98, 103–105, 107–109, 111–113, 115–116

Indiana Mathematics Standards	Investigations in Number, Data, and Space
• Solve problems that arise in mathematics and in other contexts.	These are some of the many examples. **Unit 1:** 71, 73, 75, 83–84, 92–93, 98, 102, 115–119 **Unit 2:** 78–82, 92, 102–104, 121–122 **Unit 3:** 16–19, 46–47, 74, 95, 103, 108 **Unit 4:** 24, 28–29, 77–80, 83–84, 124–126 **Unit 8:** 76–81, 83–88, 108–110
• Apply and adapt a variety of appropriate strategies to solve problems.	These are some of the many examples. **Unit 1:** 29–31**,** 71–73, 75–76, 82–83, 86–87, 103–104 **Unit 3:** 59–61, 90, 96, 106–108, 119–126, 138–141 **Unit 4:** 26**,** 137–138 **Unit 6:** 95, 101, 104, 113–114, 132–133, 143–144 **Unit 7:** 16–18, 28–31, 39–40, 70–71, 73–74, 88–89, 123, 120–121, 125
• Monitor and reflect on the process of mathematical problem solving.	These are some of the many examples. **Unit 1:** 71–74, 83–84 **Unit 2:** 32–35, 44–47, 52–53, 92, 102–103 **Unit 6:** 77–78, 90–91, 113–114 **Unit 7:** 30–31, 34–36, 44, 54–57, 60–61, 73–74 **Unit 9:** 30–32, 44, 55–58, 69–70, 91–92
Reasoning and Proof	
• Recognize reasoning and proof as fundamental aspects of mathematics.	**Unit 1:** 10–11, 29–31, 42–47, 83–84 **Unit 4**: 37–39, 42–45, 68–69, 79–80 **Unit 3**: 19, 73, 126–128 **Unit 7:** 10–11, 18, 28–31, 33–36, 39–40, 121–124 **Unit 8:** 19, 44–47, 86–88 **Unit 9:** 11, 36–37, 42–45, 108, 138–139
• Make and investigate mathematical conjectures.	**Unit 7**: 28–29, 122 **Unit 8**: 59–60, 67–69, 98 –99, 103–106, 108–110, 130–132 **Unit 9**: 23, 30–31, 36–39, 42–45, 61, 89, 94–95

Indiana Mathematics Standards	Investigations in Number, Data, and Space
• Develop and evaluate mathematical arguments and proofs.	**Unit 7**: 39–40 **Unit 5:** 41, 48, 64, 80–81 **Unit 8:** 10, 42–44, 52–55, 59–60, 69–70, 76–80, 83–88, 92, 110, 124 **Unit 9**: 11, 36–37, 39–40, 44–45, 138–139
• Select and use various types of reasoning and methods of proof.	**Unit 1:** 10–11, 29–31, 42–47, 83–84 **Unit 4:** 37–39, 42–45, 68–69, 79–80 **Unit 3:** 18–19, 126–127 **Unit 7:** 10–11, 18, 28–31, 33–36, 39–40, 121–124 **Unit 8:** 10, 42–44, 52–55, 59–60, 69–70, 76–80, 83–88, 92, 110, 124 **Unit 9:** 11, 33–34, 36–37, 42–45, 73–74, 138–139, 143–144
Communication	
• Organize and consolidate their mathematical thinking through communication.	These are some of the many examples. **Unit 1:** 55–56, 59–60, 62–63, 80–83, 89–90 **Unit 2:** 32, 34–35, 38–40, 56–57, 67–70 **Unit 4:** 26, 37–39, 42–45, 47–49, 64–65, 68–69 **Unit 7:** 30–31, 34–36, 39–40, 44, 54–56, 69–70, 76–78 **Unit 9:** 26–28, 30–32, 69–71, 73–74
• Communicate their mathematical thinking coherently and clearly to peers, teachers, and others.	These are some of the many examples. **Unit 1:** 55–56, 59–60, 62–63, 80–83, 89–90, 129–130 **Unit 2:** 32, 34–35, 38–40, 56–57, 67–70 **Unit 4:** 26, 37–39, 42–45, 47–49, 64–65, 68–69, 105–106 **Unit 7:** 30–31, 49–52, 54–56, 69–70, 76–78 **Unit 9:** 26–28, 30–32, 39–40, 69–71, 73–74

Indiana Mathematics Standards	Investigations in Number, Data, and Space
• Analyze and evaluate the mathematical thinking and strategies of others.	These are some of the many examples. **Unit 1:** 75–76, 92–93, 98, 103–104, 129–130 **Unit 2:** 32, 34–35, 40, 46–47, 52–53, 67–70 **Unit 4:** 26, 44–45, 47–49, 79–80, 105–106 **Unit 7:** 39–40, 49–52, 59–61, 73–74, 76–78, 88–89 **Unit 9:** 36–37, 39–40, 73–74
• Use the language of mathematics to express mathematical ideas precisely.	These are some of the many examples. **Unit 1:** 55–56, 73, 116, 123, 134–135, 172–173 **Unit 2:** 28, 32, 34, 65, 66, 72, 81, 96 **Unit 4:** 47–49 **Unit 3:** 38, 65–66, 98–103, 119 **Unit 7:** 59–61, 76–77, 134 **Unit 8:** 14, 18–19, 27, 69–70, 83–84, 119, 124 **Unit 9:** 26–28, 30–32, 69–71
Connections	
• Recognize and use connections among mathematical ideas.	These are some of the many examples. **Unit 1:** 29–31, 49–51, 58, 62–63, 86–89, 92–93 **Unit 5:** 40–41, 43–44, 80–81, 86–88, 92, 102–104 **Unit 7:** 38–40, 42–44, 59–61, 82–84, 88–89 **Unit 9:** 26–28, 30–32, 37–39, 42–44, 53–57, 73–74, 91–92, 96–97, 100–101
• Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	These are some of the many examples. **Unit 1:** 29–31, 49–51, 58, 62–63, 86–89, 92–93 **Unit 5:** 40–41, 43–44, 80–81, 86–88, 92, 102–104 **Unit 7:** 38–40, 42–44, 59–61, 88–89, 94–95 **Unit 9:** 23–24, 30–32, 36–39, 42–44, 53–57, 96–97

Indiana Mathematics Standards	Investigations in Number, Data, and Space
• Recognize and apply mathematics in contexts outside of mathematics.	These are some of the many examples. **Unit 1:** 83–84, 86–87, 92–93, 115–117, 137–138 **Unit 4:** 24, 28–29, 77–80, 83–84, 124–126 **Unit 7**: 34, 42–43, 51–52, 87, 103–105, 107–109, 111–113, 115–116 **Unit 8:** 76–81, 83–88, 108–110 **Unit 9:** 23–24, 30–32, 37–39, 42–44, 53–57, 64–65
Representation	
• Create and use representations to organize, record, and communicate mathematical ideas.	These are some of the many examples. **Unit 1:** 31–34, 38–39, 80–84, 115–118, 137–139 **Unit 3:** 16, 17, 18–19, 37, 73, 99, 106, 119, 121, 140 **Unit 5:** 80–82 **Unit 7** 28–31, 34–36, 42–43, 51–52, 69–72 **Unit 9:** 25–28, 37–39, 53–57, 65–67, 69–71, 91–92, 96–97
• Select, apply, and translate among mathematical representations to solve problems.	These are some of the many examples. **Unit 1:** 31–34, 38–39, 80–84, 115–118 **Unit 3:** 16, 17, 18–19, 37, 73, 99, 106, 119, 121, 140 **Unit 5:** 80–82 **Unit 7:** 30–31, 34–36, 44, 51–52, 63, 69–71 **Unit 9:** 25–28, 91–92, 96–97, 100–101
• Use representations to model and interpret physical, social, and mathematical phenomena.	These are some of the many examples. **Unit 1:** 31–34, 38–39, 115–118, 137–139 **Unit 3:** 16, 17, 18–19, 37, 73, 99, 106, 119, 121, 140 **Unit 5:** 80–81 **Unit 7:** 30–31, 34–36, 51–52, 63, 69–71 **Unit 9:** 25–28, 37–39, 65–67, 69–71, 91–92, 96–97

Indiana Mathematics Standards	Investigations in Number, Data, and Space
Estimation and Mental Computation	
• Know and apply appropriate methods for estimating the results of computations.	**Unit 1:** 10–12, 16, 88–89 **Unit 2:** 16, 21, 41–43, 48, 63–64, 71, 77, 83, 89, 96, 99, 105, 110 **Unit 3:** 44–45, 51, 58, 64, 69, 97, 105 **Unit 4:** 22, 41, 46, 70, 101, 107, 121, 128, 135, 139, 142 **Unit 6:** 49, 56, 59, 66, 73 **Unit 7:** 26, 32, 37, 41, 54–56, 62, 68, 75, 93, 96, 110, 114 **Unit 8:** 26, 33, 56, 82, 89, 107, 111 **Unit 9:** 35, 41, 68, 72, 94, 98, 105
• Round numbers to a specified place value.	**Unit 1:**89–90 **Unit 3:** 98 Unit 7:54–56, 63 **Unit 9:** 94, 105
• Use estimation to decide whether answers are reasonable.	**Unit 2:** 96 **Unit 3:** 44–45, 51, 58, 64, 69 **Unit 4:** 22, 41, 46, 70, 101, 107, 121, 128, 135, 139, 142, 146 **Unit 6:** 49, 56, 59, 66, 73 **Unit 7:** 26, 32, 37, 41, 54–56, 62, 68, 75, 93, 96, 110, 114 **Unit 8:** 26, 33, 56, 82, 89, 107, 111 **Unit 9:** 35, 41, 68, 72, 94, 98, 105
• Decide when estimation is an appropriate strategy for solving a problem.	**Unit 1:** 88–90 **Unit 2:** 42–43, 96 **Unit 6:**113–114
• Determine appropriate accuracy and precision of measurement in problem situations.	**Unit 2:** 11, 74–76, 78–82, 84–86, 106–108, 123–125 **Unit 5:** 97–98, 103–104 **Unit 8:** 26–29

Indiana Mathematics Standards	Investigations in Number, Data, and Space
• Use properties of numbers and operations to perform mental computation.	**Unit 1:** 10–12,16, 36–40, 41–47, 88–89, **Unit 3:** 44–45, 51, 58, 64, 69, 97, 105 **Unit 4:** 22 41, 46, 70, 101, 107, 121, 128, 135, 139, 142 **Unit 6:** 49, 56, 59, 66, 73 **Unit 7:** 26, 32, 37, 41, 54–56, 62, 68, 75, 93, 96, 110, 114 **Unit 8:** 26, 33, 56, 82, 89, 107, 111 **Unit 9:** 35, 41, 68, 72, 94, 98, 105
• Recognize when the numbers involved in a computation allow for a mental computation strategy.	**Unit 1:** 16, 88–89, Unit 2: 41–43, 48, 64, 71, 77, 83, 99, 105 **Unit 3:** 20, 44–45, 51, 58, 64, 69, 97, 105 **Unit 4**: 22, 41, 46, 70, 101, 107, 121, 128, 135, 139, 142 **Unit 6**: 49, 56, 59, 66, 73 **Unit 7:** 26, 32, 37, 41, 54–56, 62, 68, 75, 93, 96, 110, 114 **Unit 8:** 26, 33, 56, 82, 89, 107, 111 **Unit 9:** 35, 41, 68, 72, 94, 98, 105
Technology	
• Technology should be used as a tool in mathematics education to support and extend the mathematics curriculum.	**Implementation Guide:** 37–38 **Unit 1**: 50 **Unit 2:** 13 **Unit 3:** 13 **Unit 4:**13 **Unit 5:** 13, 36, 60, 78–80, 139 **Unit 6:** 13, 60–61, 67–72, 74–75, 126–127 **Unit 8:**15 **Unit 9:** 13
• Technology can contribute to concept development, simulation, representation, communication, and problem solving.	**Implementation Guide:** 37–38 **Unit 1**: 50 **Unit 2:** 13 **Unit 3:** 13 **Unit 4:**13 **Unit 5:** 13, 36, 60, 78–80, 139 **Unit 6:** 13, 60–61, 67–72, 74–75, 126–127 **Unit 8:**15 **Unit 9:** 13

Indiana Mathematics Standards	Investigations in Number, Data, and Space
• The challenge is to ensure that technology supports-but is not a substitute for- the development of skills with basic operations, quantitative reasoning, and problem solving skills.	**Implementation Guide**: 37–38 **Unit 1:** 50, 73 **Unit 3:**12 **Unit 5:** 60, 78–80 **Unit 6:** 13, 60–61, 67–72, 74–75, 126–127
o Elementary students should learn how to perform thoroughly the basic arithmetic operations independent of the use of a calculator.	**Implementation Guide:** 37 **Unit 1:** 50, 73 **Unit 3:** 12 **Unit 6:** 60–61, 67–72, 74–75, 125–126
o The focus must be on learning mathematics, using technology as a tool rather than as an end in itself.	**Implementation Guide:** 37–38 **Unit 1:** 50 **Unit 3:**12 **Unit 5:** 36, 60, 141 **Unit 6:** 13, 60–61, 67–72, 74–75, 126–127