What are the 6 themes we will be looking at during PYP?

The framework, called a Programme of Inquiry by the IB PYP, is made of six themes, which address the body of knowledge that the International Baccalaureate Organization considers essential for all students to acquire between the ages of 4 and 11.

All IB PYP schools design their own curriculum and units within this larger programme, following these 6 themes. Children approach traditional subject when working on those six themes, which allows them to understand the connections between the subjects and the real world.

1. Who we are
   **General Subjects:** anthropology, health, psychology, religion, and sociology
   An inquiry into the nature of the self; beliefs and values; personal, physical, mental, social and spiritual health; human relationships including families, friends, communities, and cultures; rights and responsibilities; what it means to be human

2. Where we are in place and time
   **Core Subjects:** geography, history
   An inquiry into orientation in place and time; personal histories; homes and journeys; the discoveries, explorations and migrations of humankind; the relationships between and the interconnectedness of individuals and civilizations, from local and global perspectives.

3. How we express ourselves
   **Core Subjects:** communication, language arts, music, philosophy, the arts
   An inquiry into the ways in which we discover and express ideas, feelings, nature, culture, beliefs and values; the ways in which we reflect on, extend and enjoy our creativity; our appreciation of the aesthetic.
4. How the world works  
Core Subjects: computer science, math, science, technology  
An inquiry into the natural world and its laws; the interaction between the natural world (physical and biological) and human societies; how humans use their understanding of scientific principles; the impact of scientific and technological advances on society and on the environment.

5. How we organize ourselves  
Core Subjects: government, civics, economics, sociology  
An inquiry into the interconnectedness of human-made systems and communities; the structure and function of organizations; societal decision-making; economic activities and their impact on humankind and the environment.

6. Sharing the planet  
Core Subjects: biology, botany, ecology, zoology, history  
An inquiry into rights and responsibilities in the struggle to share finite resources with other people and with other living things; communities and the relationships within and between them; access to equal opportunities; peace and conflict resolution.

2013 - 2014 Grade 3’s Units of Inquiry  
In the PYP, children study a range of topics that are designed as “units of inquiry” and incorporate all subjects rather than looking at traditional subjects separately. Through these units, which involve science and technology, social studies, personal and social education, arts and mathematics and language curricula, children are able to identify connections between subjects and learn how to ask constructive questions, plan investigations, solve problems and find answers to their questions. Students are then able to construct meaning from their learning experiences through this process of inquiry.

Who we are: “My Body, My Job.”  
Subject focus: Science, PSE  
Central idea: The effective interactions between human body systems contribute to health and survival  
Inquiry into:  
- The systems of the body and how they work (skeletal, muscular, respiratory, circulatory, digestive and nervous).  
- How body systems are interdependent  
- Impact of life style choice on the body
Where we are in place and time: “Family stories”
Subject focus: Social Studies, Literacy
Central idea: Personal and family stories provide an insight into cultural and personal identity.
Inquiry into:
- Ways to find out and record about the past
- How learning about the past generations helps to understand the relationship between the past and the present
- Similarities and differences between generations within a family

How we express ourselves: “Let’s Dance!”
Subject focus: Arts, PE
Central idea: Dance is an art form that allows people to express ideas, feelings, and beliefs through the movement of body.
Inquiry into:
- What constitutes a dance
- The role of dance in different cultures, places and times
- How people communicate through dance
- Development of dance forms over time

How the world works: “Energy”
Subject focus: Science
Central idea: Energy can be converted, transformed and used to support human progress
Inquiry into:
- Forms of energy
- The storage and transformation of energy
- How energy is used
- Sustainable energy practices

How we organise ourselves: “Technology and Inventions”
Subject focus: Science, Social Studies
Central idea: Technology and inventions impact on the world of work and leisure
Inquiry into:
Technology and inventions of the home, workplace, and leisure activities
- Circumstances that lead to the development of important inventions and their impact
- How technology supports/impacts sustainability
Sharing the Planet: “Environment” (This year unit “Going, Going, Gone” is replaced with grade 2 unit “Environment)
Subject focus: Science
Central idea: People interact with, use and value the natural environment in different ways
Inquiry into:
- Local natural environment
- How local environment addresses people’s needs
- Actions that benefit or harm the local environment

What are our specific learning objectives in mathematics?

The power of mathematics for describing and analyzing the world around us is such that it has become a highly effective tool for solving problems. Students can appreciate the intrinsic fascination of mathematics and explore the world through its unique perceptions. The programme provides students with the opportunity to see themselves as “mathematicians”, where they enjoy and are enthusiastic when exploring and learning about mathematics.

In the IB Primary Years Programme (PYP), mathematics is also viewed as a vehicle to support inquiry, providing a global language through which we make sense of the world around us. It is intended that students become competent users of the language of mathematics, and can begin to use it as a way of thinking, as opposed to seeing it as a series of facts and equations to be memorized.

It is important that learners acquire mathematical understanding by constructing their own meaning through ever-increasing levels of abstraction, starting with exploring their own personal experiences, understandings and knowledge. Additionally, it is fundamental to the philosophy of the PYP that, since it is to be used in real-life situations, mathematics needs to be taught in relevant, realistic contexts, rather than by attempting to impart a fixed body of knowledge directly to students. Mathematics in PYP looks at 5 strands:

**Number**
Our number system is a language for describing quantities and the relationships between quantities. Numbers are used to interpret information, make decisions and solve problems. For example, the operations of addition, subtraction, multiplication and division are related to one another and are
used to process information in order to solve problems.

**Shape and space**
The regions, paths and boundaries of natural space can be described by shape. An understanding of the interrelationships of shape allows us to interpret, understand and appreciate our two-dimensional (2D) and three-dimensional (3D) world.

**Measurement**
To measure is to attach a number to a quantity using a chosen unit. Since the attributes being measured are continuous, ways must be found to deal with quantities that fall between numbers. It is important to know how accurate a measurement needs to be or can ever be.

**Data handling**
Data handling allows us to make a summary of what we know about the world and to make inferences about what we do not know. Data can be collected, organized, represented and summarized in a variety of ways. Probability can be expressed qualitatively by using terms such as “unlikely”, “certain” or “impossible”. It can be expressed quantitatively on a numerical scale.

**Pattern and function**
To identify pattern is to begin to understand how mathematics applies to the world in which we live. The repetitive features of patterns can be identified and described as generalized rules called “functions”. This builds a foundation for the later study of algebra.

In 2013-2014 the ISE Math Curriculum is being revised to address the changes in the IBO standards. These changes and revisions will be communicated to parents throughout the school year.

1. **Mathematics Strand: Data Handling**

   Conceptual understandings developed this year:
   - Data can be collected, organized, displayed and analyzed in different ways
   - Different graph forms highlight different aspects of data more efficiently
   - Probability can be based on experimental events in daily life
   - Probability can be expressed in numerical notations
Overall expectations

Learners will continue to collect, organize, display and analyze data, developing an understanding of how different graphs highlight different aspects of data more efficiently. They will understand that scale can represent different quantities in graphs and that mode can be used to summarize a set of data. The learners will make the connection that probability is based on experimental events and can be expressed numerically.

Grade 3 students:
• collect and organize data or use given data to create charts, tables, bar graphs, and line plots
• use graphs to ask simple questions and draw conclusions; find the maximum, minimum, range, mode, and median of a data set
• describe events using certain, very likely, likely, unlikely, very unlikely, impossible and other basic probability terms; explain the choice of language
• predict the outcomes of simple experiments and test the predictions using manipulatives; express the probability of an event by using “_ out of _” language

2. Mathematics Strand: Measurement

Conceptual understandings developed this year:
• Objects and events have attributes that can be measured using appropriate tools
• Relationships exist between standard units that measure the same attributes

Overall expectations
Learners will continue to use standard units to measure objects, particularly in developing their understanding of measuring perimeter, area and volume. They will select and use appropriate tools and units of measurement, and will be able to describe measures that fall between two numbers on a scale. The learners will be given the opportunity to construct meaning about the concept of an angle as a measure of rotation.

Grade 3 students:
• estimate length with and without tools; measure length to the nearest # centimeter; draw and describe angles of records of rotations
• describe and use strategies to measure the perimeter of polygons; count unit
squares to find the areas of rectangles
• describe relationships among millimeters, meters, and kilometers; describe relationships between minutes in an hour, hours in a day, days in a week
• tell and show time to the nearest minute on an analog clock; tell and write time in digital notation

3. Mathematics Strand: Shape and Space

Conceptual understandings developed this year:
• Changing the position of a shape does not alter its properties.
• Shapes can be transformed in different ways.
• Geometric shapes and vocabulary are useful for representing and describing objects and events in real-world situations.

Overall expectations
Learners will sort, describe and model regular and irregular polygons, developing an understanding of their properties. They will be able to describe and model congruency and similarity in 2D shapes.
Learners will continue to develop their understanding of symmetry, in particular reflective and rotational symmetry. They will understand how geometric shapes and associated vocabulary are useful for representing and describing objects and events in real-world situations.

Grade 3 students:
• identify and draw points, intersecting and parallel line segments, and lines, rays, and right angles
• identify, describe, model, and compare plane and solid figures including circles, polygons, spheres, cylinders, rectangular prisms, pyramids, cones, and cubes using appropriate geometric terms including the terms face, edge, vertex, and base
• create and complete two-dimensional symmetric shapes or designs; locate multiple lines of symmetry in a two-dimensional shape

4. Mathematics Strand: Pattern and Function

Conceptual understandings developed this year:
• Functions are relationships or rules that uniquely associate members of one set with members of another set
• By analyzing patterns and identifying rules for patterns it is possible to make predictions
Overall expectations

Learners will analyze patterns and identify rules for patterns, developing the understanding that functions describe the relationship or rules that uniquely associate members of one set with members of another set. They will understand the inverse relationship between multiplication and division, and the associative and commutative properties of multiplication. They will be able to use their understanding of pattern and function to represent and make sense of real-life situations and, where appropriate, to solve problems involving the four operations.

Grade 3 students:

• extend, describe, and create numeric patterns; describe rules for patterns and use them to solve problems; use words and symbols to describe and write rules for functions involving addition, subtraction, and multiplication and use those rules to solve problems
• read, write, and explain number sentences using the symbols +, -, x, ÷, =, >, and <; solve number sentences, write expressions and number sentences to model number stories
• recognize that numeric expressions can have different values depending on the order in which operations are carried out; understand that grouping symbols can be used to affect the order in which operations are carried out

5. Mathematics Strand: Numbers

Conceptual understandings developed this year:
• The base 10 place value system can be extended to represent magnitude.
• Fractions and decimals are ways of representing whole-part relationships.
• The operations of addition, subtraction, multiplication and division are related to each other and are used to process information to solve problems.
• Even complex operations can be modeled in a variety of ways, for example, an algorithm is a way to represent an operation.

Overall Expectations

Learners will develop the understanding that fractions and decimals are ways of representing whole-part relationships and will demonstrate this understanding by modeling equivalent fractions and decimal fractions to hundredths or beyond. They will be able to model, read, write, compare and order fractions, and use them in real-life situations. Learners will have automatic recall of addition, subtraction, multiplication and division facts. They will select, use and describe a range of strategies to solve problems.
involving addition, subtraction, multiplication and division, using estimation strategies to check the reasonableness of their answers.

**Grade 3 students:**
- read and write whole numbers up to 1,000,000; read, write, and model with manipulatives decimals through hundredths; identify places in such numbers and the values of the digits in those places; translate between whole numbers and decimals represented in words, in base-10 notation, and with manipulatives
- read, write, and model fractions; solve problems involving fractional parts of a region or a collection; describe strategies used
- find multiples of 2, 5, and 10
- use numerical expressions involving one or more of the basic four arithmetic operations to give equivalent names for whole numbers
- use manipulatives and drawings to find and represent equivalent names for fractions; use manipulatives to generate equivalent fractions
- compare and order whole numbers up to 1,000,000; use manipulatives to order decimals through hundredths; use area models and benchmark fractions to compare and order fractions
- demonstrate automaticity with all addition and subtraction facts through 10 + 10; use basic facts to compute fact extensions such as 80 + 70
- use manipulatives, mental arithmetic, paper-and-pencil algorithms, and calculators to solve problems involving the addition and subtraction of whole numbers and decimals in a money context; describe the strategies used and explain how they work
- demonstrate automaticity with x0, x1, x2, x5, and x10 multiplication facts; use strategies to compute remaining facts up to 10 x 10
- use arrays, mental arithmetic, paper-and-pencil algorithms, and calculators to solve problems involving the multiplication of 2- and 3-digit whole numbers by 1-digit and describe the strategies used

What are our specific learning objectives in language?
Language in PYP is developed through 4 strands: oral language (listening and speaking), visual language (viewing and presenting), written language (reading) and written language (writing). Oral language encompasses all aspects of listening and speaking—skills that are essential for ongoing language development, for learning and for relating to others. Viewing and presenting allow students to understand the ways in which images and language interact to convey ideas, values and beliefs. Reading is a developmental process that involves constructing meaning from text. Reading helps students to clarify their ideas, feelings, thoughts and opinions. And
writing is a way of expressing themselves. It is a personal act that grows and develops with the individual.

1. Oral language—listening and speaking

Conceptual understandings developed this year:
• Spoken language varies according to the purpose and audience
• People interpret messages according to their unique experiences and ways of understanding
• Spoken communication is different from written communication—it has its own set of rules

Overall expectations
Learners show an understanding of the wide range of purposes of spoken language: that it instructs, informs, entertains, reassures; that each listener’s perception of what he hears is unique. They are compiling rules about the use of different aspects of language.

2. Visual language—viewing and presenting

Conceptual understandings developed this year:
• Visual texts can expand our database of sources of information
• Visual texts provide alternative means to develop new levels of understanding
• Selecting the most suitable forms of visual presentation enhances our ability to express ideas and images
• Different visual techniques produce different effects and are used to present different types of information

Overall expectations
Learners show an understanding that visual text may represent reality or fantasy. They recognize that visual text resources can provide factual information and increase understanding. They use visual text in a reflective way to enrich their storytelling or presentations, and to organize and represent information.
3. Written language—reading

The ISE reading philosophy is:

- Children learn to read by reading.
- Reading is a developmental process that involves constructing meaning from text. The process is interactive and involves the reader’s purpose for reading, the reader’s prior knowledge and experience, and the text itself.
- Reading helps us to clarify our ideas, feelings, thoughts and opinions.
- Literature and discussions about literature offer us a means of understanding ourselves and others, and has the power to influence and structure thinking.
- The ability to read and comprehend non-fiction is essential for the process of inquiry. As inquirers, learners need to be able to identify, synthesize and apply useful and relevant information from text.
- As learners engage with interesting and appealing texts, appropriate to their experiences and developmental phase, they acquire the skills, strategies and conceptual understanding necessary to become competent, motivated, independent readers.
Reading instruction at ISE follows a specific progression, building on children’s skills to develop strong, independent readers.

Children think along and respond

Teacher reads out loud, models different strategies that readers use

Read aloud

Children finish sentences or rhymes or read out loud where they can

Teacher reads and guides

Shared reading

Children read out loud and practice what has been learned

Teacher supports readers in small groups

Guided reading

Child uses learnt skills and reads out loud to a skilled reader

Teacher supports the reader

Paired reading

Child uses learned skills and strategies independently

It may be pretend reading in preschool

Independent reading

Grade 3 students:
Reading behavior and attitudes:

- Develop personal preferences, selecting books for pleasure and information
- Read texts at appropriate level, independently, confidently and with good understanding
- Participate in collaborative learning experiences, acknowledging that people see things differently and are entitled to express their point of view

Reading skills
• Understand sound-symbol relationships and apply reliable phonetic strategies when decoding print
• Read with fluency, expression and intonation

Reading comprehension strategies

• Use strategies to self-monitor and self correct while readings, for example using meaning, context, syntax, rereading and reading on.
• Discuss their own experiences and relate them to fiction and non-fiction texts
• Make predictions about a story, based on their own knowledge and experience
• Wonder about text and ask questions to try to understand what the author is saying to the reader

Text structure and story elements

• Recognize a range of different text types, for example, letters, poetry, plays, stories, reports, articles
• Identify and explain the basic structure of a story - beginning, middle, and end
• Appreciate that writers plan and structure their stories to achieve particular effects

4. Written language—writing

The ISE writing philosophy is:
• Children learn to write by writing, reading and by example.
• Writing is a way of expressing ourselves. It is a personal act that grows and develops with the individual.
• Writing is a tool for thinking. We use it to clarify and organize thinking and ideas as well as solve problems.
• We write for a variety of purposes and audiences.
• Writing involves developing a variety of structures, strategies and literary techniques and applying them with increasing skill and effectiveness.
• Writing is a process.

Grade 3 students:
General

• Write regularly and with confidence.
• Write for a range of purposes, using different types of structures and styles with guidance, for example, informational, persuasive, creative, poetry, and narrative.
• Adapt writing for different audiences

Writing process

• Use the writing process with guidance.
• Plan for writing using a variety of organizers, such as a writer’s notebook, concept maps, storyboards, lists, drawings and free writes.
• Revise and edit written work, making corrections and improvements in language, content, and organization.
• Conference with teachers who record progress and learning goals, and make appropriate changes to their written work in response.
• Work independently to publish quality final pieces either by hand or digitally.
• Share written work with peers and respond to the writings of others in the spirit of celebration.

Writer’s craft

• Organize ideas in a logical sequence, for example, writing narratives with a beginning, middle and end or short essays with a topic sentence, supporting details and a closing sentence.
• Use descriptive language to express their meaning, extending their language through the use of dictionaries and thesauruses and word banks specific to areas of inquiry.
• Use a variety of techniques and styles to bring writing to life, for example simile, metaphor, alliteration, and onomatopoeia.

Writing conventions

• Use spelling patterns, high-frequency words and high-interest words with increasing accuracy and confidence.
• Identify and apply punctuation such as periods, question marks, exclamation marks, commas and quotation marks.
• Use increasingly accurate grammatical constructs, including subject-verb and subject-noun-pronoun agreements as well as appropriate syntax.
• Write legibly, with appropriate use of capital and lowercase letters
• Begin to use word processing.