

# THE BIG PICTURE

Ormondale students engage with the world as learners. They approach education with curiosity and excitement to actively understand and continuously grow.



Many informal learning situations, such as museums, have applied constructivist learning theory to their environments—inviting learners to discover meaning in objects by asking open-ended questions and prompting investigations of a subject that allow for understanding of history, science, and many other subject areas.

Investigative Learning also has strong intersections with other pedagogical approaches to learning, such as project-based, problem-based, inquiry-based, and open learning, all forms of active learning. These approaches, while each having their unique bias, are all built upon similar beliefs and nuanced distinctions of constructivist theories.

***In case you want to investigate more, check out:***

- John Dewey and his powerful, and complex, philosophical material
- Jean Piaget and his clear identification of child development
- Lev Vygotsky and the Zone of Proximal Development
- Paulo Freire and learning through authentic problem-solving
- Howard Gardner and his theory of Multiple Intelligences
- The work of Maria Montessori
- The Reggio Emilia approach to early childhood education in Italy

## **Grounded in Theory**

The term “Investigative Learning” was born from a discussion of the kinds of processes that would develop the skills in students that will help them thrive in the 21st century. We, as a group of educators at Ormondale School, constructed it. While it is a new term to Ormondale that helps the staff come together around a shared philosophy of learning and teaching, the ideas behind Investigative Learning are consistent with contemporary educational theories.

Investigative Learning could be considered a pedagogical approach of a Constructivist learning theory.

The Constructivist theory basically states that learning happens through the construction of meaning, building upon what one already knows and understands. This means that all learning is invented by the learner. As such, learners, in their minds, reconstruct everything they encounter, including language, literacy, and math. (Or principles of learning, for instance.)

In this view, learning is a highly individualized experience which is facilitated by others, but always initiated and directed by the learner whether they are listening to a lecture, or engaged in an interactive experience.

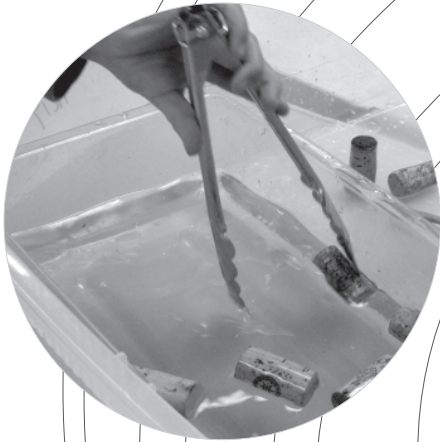
### **Some principles that support constructivist learning include:**

- Each learner is a unique individual
- The learner is responsible for their own learning
- The learner has intrinsic motivation to learn, through a process of exploring and addressing challenges to their existing mental framework
- Play and experimentation are important aspects of learning, allowing for the learner to discover understanding through their own exploration and approaches
- The teacher takes on a role of facilitator, challenging the learner through asking questions, establishing guidelines, and being in dialog with the learner, offering a context for the learner to develop his or her own understanding
- The learning process is social and interactive, allowing learners to discover meaning. This context includes facilitators and peers, and real world stimulus.

## **This becomes increasingly important in the complexity of the 21st century.**

Our ability to engage and inspire children through dynamic learning experiences is the way to ensure that all students are successful in the future. Ormondale School creates an environment where learning is an active and reflective process. We believe all students are naturally inquisitive, and begin as natural learners. To keep this notion alive, we design learning experiences that invite our students to take responsibility for their education by asking questions and discovering answers. We call this Investigative Learning.

- *First Grade students investigate adaptations of birds through the Bird Beak Buffet.*



4. CATALYZE



**Example:**

*The Third Grade Creek Project*

Linda Vlasic: When they found another class down here sitting on the gabions—they were incensed! They said “That’s not right! You can’t do that, you will cause erosion!”

I put the idea out there, would they be willing to doctent others in the school.

I think that’s when they came up with, “Oh! We could write a book! We could take pictures!”

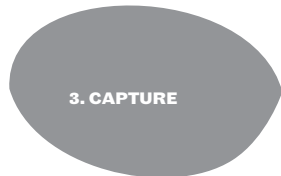
And oh my gosh, all of the things that fit right into the standards with making decisions and evaluating what’s important.

*Theme defined by students & exploration defines the goal*

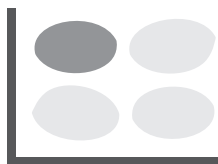
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The CATALYZE experiences capture student interest and allow students to engage in deeply exploring a question that is authentic and relevant to them. Students are motivated to learn independently because they are vested in the exploration. There is no set end goal at the beginning, but the solution presents itself as the students learn more about their topic. It emerges from their investigation.

Teachers play an important role in both facilitating a space for exploration and investigation as well as including content from both the state standards and the 21st Century Learning Standards.



*Theme defined by students & predefined end goal*



The CAPTURE experiences leverage student interest by applying a student-driven topic to a set learning goal. These investigations happen through a structured task, pursuing a question that emerges from student interest.



The role of the teacher is to recognize opportunities to capture student curiosity and apply it to a structured task in a way that feels exciting and natural to the students, building an authentic learning experience from their own personal interests.

**Example:**

*Second Grade Fairy Tales*

Boy: I read about castles and then I built them. And I included all of these things in my castle: a catapult, a dungeon, and other stuff. And so, that's why it was fun to do.

Interviewer: Did you learn anything more about castles while you were building it?

Boy: Sort of, that there's a moat around the castle and the windows are not square. They are sort of, um, ovalish, except for the bottom, which is flat, and they are thin.

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# DEVELOPING A CULTURE OF INVESTIGATION

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## 2. EXTEND



### Example:

*Second Grade Sand,  
Silt and Pebbles*

Dr. Warren: Do you like learning the way you did in Science Rotations, when you got to experiment?

Boy: Yeah, because you got to look really close. You had lots of time to do stuff. You can move your things around with your hands, and you could take things out and look real close with a magnifying glass.

*Theme defined by teacher & exploration defines the goal*

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EXTEND experiences expand upon a curriculum topic in a new way. While the theme of the work is still defined by the state standards or a topic chosen by the teacher, the students have an opportunity to delve deeper into a theme by engaging actively in the exploration of a subject that they want to learn more about.

As educators the challenge is to find a topic that captures the attention of the students enough to allow them to explore the information further. The teacher will carefully offer an amount of student freedom for children to find their own interests and ideas within the provided topic.

## 1. INSPIRE

**Example:***Kindergarten Ice Houses*

Girl: My friend made a house. It had no roof and no stuff to keep the warm air out, so it melted in one minute!

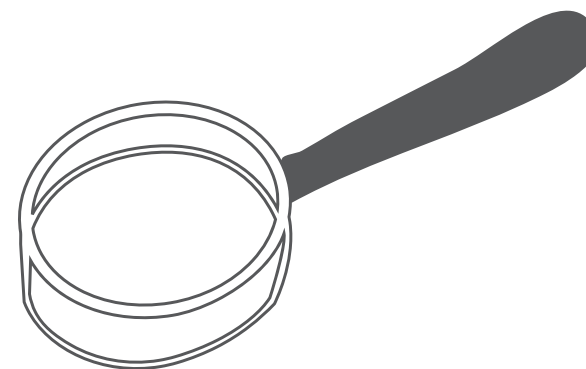
Boy: Someone made an Ice House with a metal ring around it. That worked very bad; the metal absorbed the heat.

Girl: I learned that the best way to keep an ice cube cold is with ice!

## *Theme defined by teacher & predefined end goal*

These experiences work within the constraints of the set curriculum to inspire students in a new way. Students investigate within a set goal, established by the teacher or students at the outset. The role of the teacher is to open children up to exploring within that focused area.

The INSPIRE learning experiences are most common because they are reliable. A goal is set ahead of time, and the topic is an exploration of a theme required by grade level standards or the teacher's curriculum.



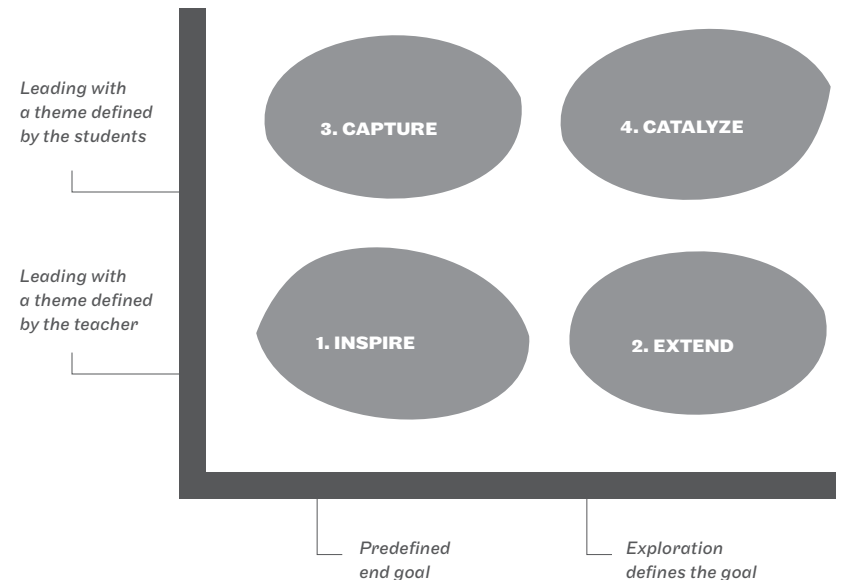
# THE JOURNEY TOWARD 21<sup>ST</sup> CENTURY TEACHING

In summer of 2006, the teachers of Ormondale School had begun the process of developing a vision for the future of teaching at Ormondale. We knew that in order to produce 21st century learners we could not use 18th century methods. We approached IDEO, an innovation consultancy, to find space to further develop our vision for the future. Collectively, we defined the new teaching philosophy of Investigative Learning.

Throughout the 2007 and 2008 school years, we have been piloting new methods, learning how to design curriculum and approach classroom learning in a new way. In March of 2008, IDEO came back to work with the teaching staff in order to create definitions and tools. This guide is the culmination of our experiences to this point.



## TYOLOGY of Learning Experiences





Within Investigative Learning there is a range of different learning experiences that are created. They organize into four distinct categories—all valid and compelling. Choosing which type of experience to design depends on what is being taught, the children involved, and the inclination and comfort of the individual teachers.

## 21st Century Students

*Our district has identified key areas in which we believe our students should be prepared in order to thrive in the future.*



### STRATEGIC PLAN FOCUS

#### **THE GLOBAL STUDENT**

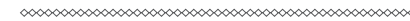
PORTOLA VALLEY SCHOOL DISTRICT WILL PREPARE STUDENTS WHO:

Meet and exceed the California Content Standards and demonstrate mastery of other selected standards.

Confront challenges by applying critical thinking, problem solving, research, and communication skills.

Demonstrate respect, responsibility, service, resilience, creativity, innovation and love of learning.

Understand and value other cultures and perspectives



Our approach to preparing students is to design a more holistic educational experience that integrates academic standards with these new learning goals. To achieve this, we've oriented the design of our teaching to foster investigation, dynamic problem solving, a sense of responsibility, and a proactive approach that creates a powerful leader for the 21st century.

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We have begun a journey toward a new model of teaching, where experiences are structured to prompt students to investigate the world around them.

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- *A Kindergarten student makes a choice about his afternoon experiences in Plan, Do, Review*

**Framing Questions**

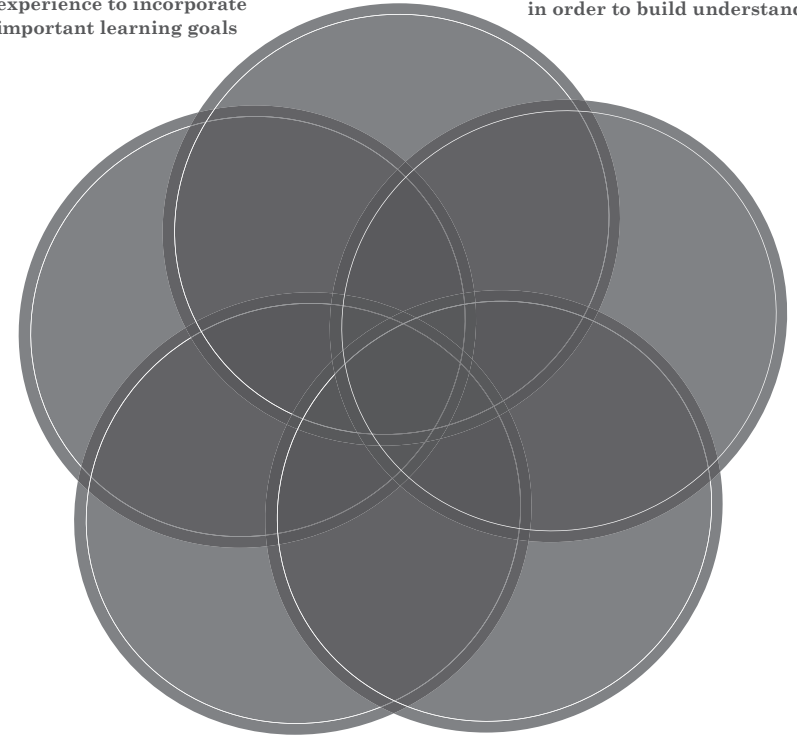
Starts with an authentic question framed as an investigation for students to explore

**Engaging Activities**

Teachers guide students to explore ideas firsthand and construct conclusions themselves in order to build understanding

**Curricular Goals**

Teachers guide the experience to incorporate important learning goals



**Reflect on Learning**

Teachers and students reflect on what has been learned and evaluate success

**Assessment Throughout**

Teachers design assessments to help shape students' understanding throughout the learning experience

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There are five key components to designing an Investigative Learning experience. Paying attention to these components over time will help develop more comprehensive curricula, and will lead to consistency of experiences throughout the school.

# ESSENTIAL ELEMENTS

*All Investigative Learning experiences share the following characteristics:*



Student activity is designed to work toward answering a clear, framing question that students understand and are invested in.

Learning is an active process in which students investigate ideas to construct understanding.

Children and teachers co-create the process used to find answers. They make choices and decisions along the way.

Children understand their role in learning and take responsibility for informed decisions.

Students understand the measures of success and can reflect on their own learning.

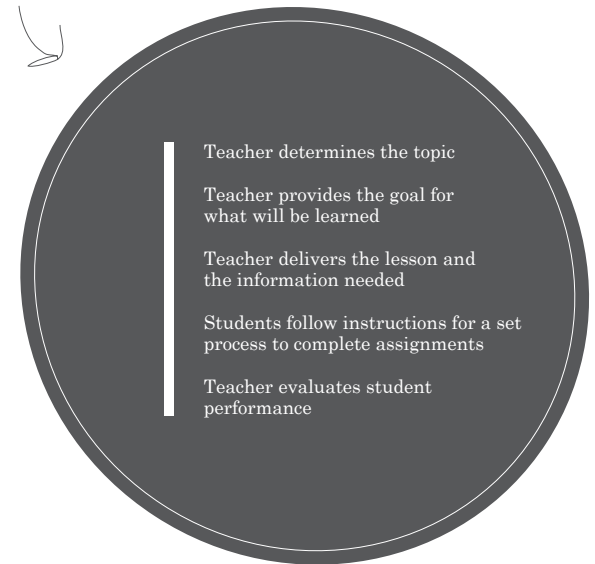
Experiences are constructed to meet the California State Content Standards as well as Ormondale's newly established 21st Century Learning Standards.



*This leads to consistent student experiences throughout their time at Ormondale.*

# TRADITIONAL MODEL (Directed Teaching)

**Teacher is responsible for the learning**

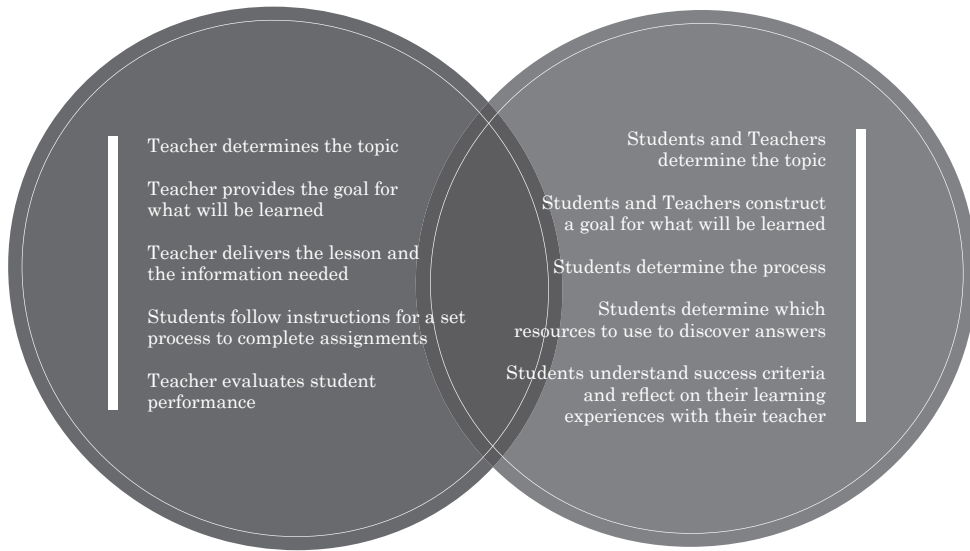


Basic skills are most often learned through directed teaching. This will remain a fundamental part of the curriculum at Ormondale, but does not achieve the new standards we have set for ourselves to support the depth of knowledge and engagement in learning necessary for the 21st century student.

# INVESTIGATIVE LEARNING

(Student Responsibility)

**Teacher is responsible for the learning**



**Student is responsible for the learning**

**Let’s investigate a little further: When we conducted interviews with students, we asked them about times for investigation and times for quiet learning. Here is how the third grade students described opportunities for Investigative Learning.**

*Boy: With math I think you learn more if you decide. Because you might get to do, like, 30 different things. Then you learn what doesn’t work and you KNOW, instead of the teacher just telling you what will work. Because you get to explore a bit.*

*Boy: I like learning about history with Investigative Learning because YOU get to learn. YOU get to be the expert at it after you’re done. That’s fun... you can answer a lot of people’s questions in the class.*

Alongside directed teaching, we are thoughtfully building skills that facilitate the 21st century classroom experience. Students are encouraged to take responsibility for their own learning and are provided opportunities to learn how to ask questions and to seek answers themselves.



***Investigation is an integral component of Ormondale's philosophy of teaching.***





## **Responsible for Learning**



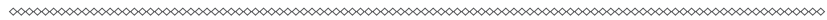
*Interviewer: Is the Creek a good place to learn?*

*Girl: Yeah, because you see so many birds and plants and fish.*

*Boy: You can see something in nature, and where it's put.*

*Interviewer: Why not just look in a book?*

*Boy: No, because in real life it's better than in a book. Because... if an artist draws it, then it's really not good—they might not be placed in the right place. You need to see it in nature.*



● *First grade interview with IDEO*

### **Investigation**

- Contribute ideas
- Seek understanding
- Employ creativity in communicating ideas
- Set and work toward goals
- Demonstrate engagement in learning
- Experiment and explore ideas
- Ask clarifying questions
- Employ multiple approaches to problem solving
- Demonstrate resilience

### **Responsibility**

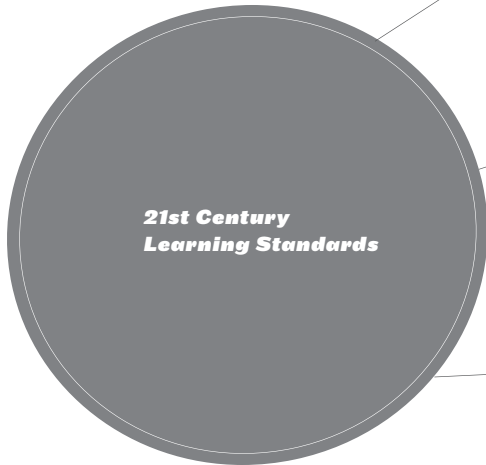
- Act as a self-directed learner
- Approach challenges with confidence and interest
- Make informed choices
- Use time effectively
- Show consideration for others by practicing self-restraint
- Collaborate with peers
- Demonstrate confidence and pride in sharing work with others
- Act as a caring and interested citizen

### **Application**

- Acquire and apply new skills and knowledge
- Deepen existing skills and knowledge
- Make connections between lessons and own experiences
- Retain information over time
- Use new resources effectively
- Communicate to express understanding
- Listen respectfully to build understanding

## 21st Century Learning Standards

**Student is responsible  
for the learning**



### **Toward A New Model**

*We are evolving toward a culture that moves beyond the teacher as director of learning.*



Instead, the teacher facilitates within children a sense of responsibility and ownership in education so that they become active learners throughout their time in school. Children understand the joy and value of learning and are authentically engaged in school.

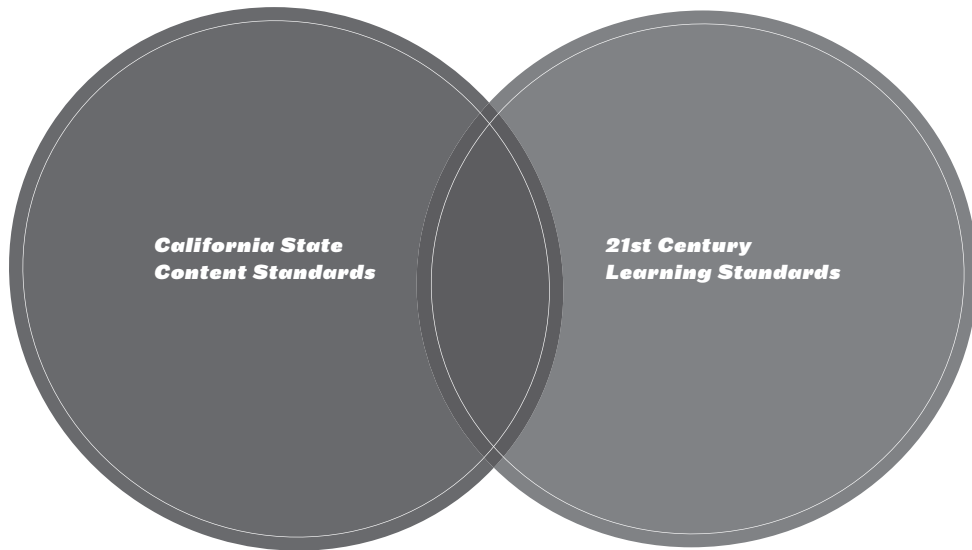
While experiences that are student-driven can sometimes look like play, in reality, taking responsibility and making choices is hard work. Through investigation students are challenged to think differently, which is both exciting and exhausting for them. It is also challenging for teachers to build their skills of facilitation, requiring them to find a balance between discovery and curriculum skills and content.



*The engagement in learning that comes from these types of experiences, for both the student and the teacher, is worth the dedication.*

# DEVELOPING ADDITIONAL STANDARDS

*Teacher is responsible  
for the learning*



*Student is responsible  
for the learning*

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In order to measure the variety of skills we care about teaching to our students, including those that extend beyond the required state standards, we have developed an additional set of criteria to measure the qualities that support the 21st century student.

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