

Project 3 - Unit Plan

□ Curriculum Map

- **Instructional context:** English Reading and Writing - Unit 3 Hidden Genius (For Korean ESL students)
- **Timeline:** Three weeks
- **Placement context :** 11th grade ESL high school students (Ethnicity: Korean)

Essential Questions/ Overall Goals	<ul style="list-style-type: none"> ● Understand three-level Reading and apply it to any type reading ● Create own questions (factual, interpretive, critical/applicative)
Content	<ul style="list-style-type: none"> ● Mathematical terms (e.g: square, cube, sum, function) ● Indian Culture and Caste ● Biography of Ramanujan
Skills	<p>Students will</p> <ul style="list-style-type: none"> ● Understand literal and embedded meaning of texts. ● Write their own questions based on the texts ● Read critically reflecting on their knowledge and experience ● Use basic reading skills such as skimming and scanning for different purpose..
Learning/Teaching Strategies	<ul style="list-style-type: none"> ● Modeling ● Think-aloud ● TttT (Talk to the Text) ● Note-It ● Small group discussion ● Jigsaw technique ● Written/Verbal test ● Vocabulary ● Summarizing
Cumulative Assessment	<ul style="list-style-type: none"> ● Individual assignment of creating questions based on the three-level reading inquiry ● Group Poster - open discussion (The outcomes on display)

❑ Lesson Plans

Lesson Plan #1

Context : This lesson plan is inspired by the chapter 5 Reading Between and Beyond the Lines written by Jeffrey D. Wilhelm. All the lessons follow the questioning scheme, ReQest by Manzo, to help students be an active and critical readers. The scheme involves three levels of reading; on the lines, between the lines, and beyond the lines. It encourages students to read with different or deeper perspectives. In this lesson, students will be introduced the concepts and implications of three-level reading. With sample questions and statements, students will know what these three different types of questions or statements.

Objectives : Students will

- understand three-level reading with example sentences.
- distinguish three different statements; on the lines, between the lines, and beyond the lines.

Events for the lesson :

1. Students are asked why they read and how they have been reading.
2. Show students several example titles of readings such as “Be Assertive”, “Copying Nature’s Designs”, and “Low-impact Living”. Let students guess what the readings will be about by the titles.
3. Present one of the readings and introduce three-level reading and its concept.
4. Give students worksheets about three-level reading and sample questions/statements.
5. Ask students what factual, interpretive, and critical/applicative understanding is and check with further questions to see if they understand the concepts.

Homework Assignment : Give students a reading with statements of three-level reading. Let them check the statement that they think fits each category.

Resources : Sample texts

Lesson Plan #2

Context : The lesson is to give students individual opportunities to think about inquiry questions on their own. This will be done after students learn about three-level reading and know how three types of questions are different.

Objectives : Students will

- create three types of questions based on the texts.
- share their questions with peers and get feedback from each other.

Events for the lesson :

1. Review the concepts of three-level reading.
2. Check out the homework. Give students a list of vocabulary that might be difficult for them, especially a mathematical terms.
3. Read today's text "Hidden Genius" and ask "on the lines questions" to check factual understanding. Explain certain concepts from the reading such as "Caste, or Royal Academy of Mathematics".
4. Give students some time to find out more facts from the text. Let any student tell what they found.
5. To move students to the next step, show students how to dig further with think-aloud technique.
6. Practice distinguishing three different reading comprehension with many questions - factual, interpretive, and critical/applicative understanding.

Homework Assignment : Let students select parts of the text and create their own questions.

Resources : Individual Assignment #2, Main text, Vocabulary list

Lesson Plan #3

Context : Students will have pair/group discussions with their assignment questions. Students are used to thinking in three different inquiry modes when reading texts. This lesson will move students to a deeper level of comprehension by encouraging them to explore hidden meaning of the text.

Objectives : Students will

- create further questions and share their opinions with peers in pair/small group.
- try to connect what they learn from the text to their experience as individuals and groups.

Events for the lesson :

1. Students gather in group of four and exchange their individual questions with each other.
2. In a small group setting, students have a sufficient opportunity to share ideas and get feedback from the peers and the teacher every now and then.
3. Let the whole class know that what interesting questions arise from each group. Make sure the questions are whether on-the-lines, between-the-lines, or beyond-the-lines questions.
4. Each group chooses one question to discuss further.
5. Students move to other groups and share ideas in different groups.

6. The teacher consolidates questions and ideas from the groups in a big paper or board.

Homework Assignment : Create three-level reading questions from three texts that students select. (at least four on-the-lines, three between-the-lines, and three beyond-the-lines questions)

Resources : Assignment format

Lesson Plan #4

Context : Students are assumed to be ready to apply three-level reading to any kind of texts. Students are encouraged to ask themselves questions to develop reading comprehension and higher-order thinking ability. In this lesson, students will have opportunities to apply their knowledge and skills to real-life readings and their experiences.

Objectives : Students will

- practice critical/applicative understanding beyond factual comprehension.
- compare their thoughts with others' to be open-minded and learn from peers along with texts.

Events for the lesson :

1. Present the three texts on the poster and give each student copy of those posters in paper.
2. Students are free to walk around the posters and write questions they think suitable for the three categories in their individual paper. (on the lines, between the lines, and beyond the lines)
3. Students gather in groups and discuss what questions they come up with.
4. Let students see which categories those questions should fall into. Students classify the questions based on the types.
5. Collaborate questions in one paper and three students from each group write their questions in the poster on the wall. If they find the same or similar questions already in the poster, then they mark the questions.
6. Let students know that they are free to write opinions and thoughts to those questions for a week.

Homework Assignment : Create three-level reading questions with any text students select.

Resources : Three-level reading format

□ Reflection

I've been trapped in a limited thought very long that it might be hard for ESL students to have deep discussion about texts they are reading due to the lack of linguistic competence of students' 2nd language, that is English. But I've found that I am very wrong because students don't necessarily have to discuss deeper meaning of the text only in 2nd language. They are free to use their 1st language in thinking and expressing as well as 2nd language. In this perspective, the concept of "English as an additional language (EAL)" is so encouraging and embracing. Students who are not confident in English often think that speaking in 1st language in English classes is not right because it may show their incompetence of language ability, which is not true.

"It is essential for secondary teachers to understand the important role that students' home languages play in their meaningful engagement with content and in the development of higher-order reasoning competencies (McGraw & Rubinstein-Avila, in press. p.25)."

"...secondary teachers ought to understand that ELLs use their existing linguistic competencies to expand their English competencies and content knowledge. (Rubinstein-Avila & Johnson, 2007, p.25)"

As a secondary ESL teacher, I feel responsible for supporting students to have a positive learner identity by making them know that their existing language and culture is a precious asset for learning and encouraging them to use both of their languages to develop higher-order thinking ability. It is not just about language we learn but the meaning embedded in it. After all, that's what language learners need to learn how to communicate in other languages. The purpose of learning a language is not just acquiring linguistic materials (vocabulary, grammar structure, etc.) but the meaning in them (intention, purpose, culture, and belief).

To understand what texts have to say, it is essential to understand what the text say literally and then what it truly means. And lastly it is important to learn how to relate those meanings to learners' real life. My attitude and approach to texts has changed drastically while I was thinking about this project. In my real classes, I put these things into practice and saw how students reacted differently. I shared factual understanding with students, and then tried to dig for deeper meaning behind the texts. They showed interest and active engagement in reading by sending signals like nodding or talking in their words more often. But they won't proceed further. Their purpose of learning mostly focuses on test preparation, that is college entrance exam. So when they feel they've learned enough to do what test items require them to do, they tend to stop there. It is like arriving at where a treasure chest is, but not opening it to have things inside. This seemed sad to me. However, that was a good start for me and them, because we had an opportunity to reflect on our current state and what to do next. We've just started our first step toward real learning thanks to this project.

Appendix

Hand-out #1

Three-level Reading

- **On the Lines (Factual Comprehension)**

Recognizing key factual information that is directly stated
(e.g: Where was Ramanujan born?)

- **Between the Lines (Interpretive Exploration)**

Making interpretive/inferential moves that require students to fill in textual gaps by making connections between various textual details or by connecting their experience to the text
(e.g: Why did Ramanujan send a mail to Professor Hardy?)

- **Beyond the Lines (Critical/Applicative Understanding)**

Extending thinking beyond the text's explicit and implicit meanings to evaluation and application in the larger world

(e.g: What could we learn from the attitude of Ramanujan and G.H. Hardy when they worked together as a mentor and mentee, or colleagues?)

Main text

Hidden Genius

***Directions:** Write or draw your questions and responses on the space below each passage. Mark sections that apply to the questions in the guide.

In the popular movie *Good Will Hunting*, a janitor working at MIT, one of the best universities in America, solves a complicated math problem that was written on a board by a professor. The janitor, Will Hunting, had been studying mathematics on his own. The professor, Gerald Lambeau, realizes that Will has a very special talent. In the following scene, he explains the situation to another professor, Sean.

Lambeau: Have you ever heard of a man named Ramanujan?

Sean: (*nodding his head*) Yeah.

Lambeau: So this Ramanujan lived in a tiny hut in India. No formal education, no access to other works. But he came across an old math book and from this basic text he was able to discover theories that had confused mathematicians for years.

Sean: And he mailed them to Hardy ...

Lambeau: That's right, Sean. He mailed them to a professor at Cambridge, who immediately recognized the brilliance in his work and brought Ramanujan to England.

Sean: Where he suffered from *pneumonia and died at a young age ...

Lambeau: They worked together for the remainder of their lives, producing some of the most exciting math theories ever written. Ramanujan's genius was unparalleled, Sean. This boy is like that. But he's very defensive and I need someone who can get through to him.

#1 Truly Brilliant Beyond Hollywood

Although *Good Will Hunting* is a fictional film, Srinivasa Ramanujan was a real person. He was a young, uneducated man from India who turned out to be one of the greatest mathematicians of the 20th century.

Ramanujan was born into a poor family living near the city of Madras in 1887. Although his family was of high caste, they didn't have enough money to send him to school. Despite this, he began to study mathematics on his own. When he was 15, he read a book that was

a collection of mathematical *theorems. Ramanujan's detailed understanding of the complicated ideas in this book provided the first hint of his true genius.

He was given a full scholarship to a university, but spent all of his time studying mathematics. Because he neglected his other classes, his scholarship was not extended for the following year. He took an accounting job to earn money and began to have some of his work published in the *Journal of the Indian Mathematical Society*. Although he was unable to finish his university education, he didn't lose his passion for mathematics.

#2 Recognizing Genius

Encouraged, Ramanujan wrote a letter to G.H. Hardy, an honored 35-year-old mathematician at the University of Cambridge. In it, he introduced himself and described his work.

Dear Sir,

... I have had no university education but I have undergone the ordinary school course. Since leaving school, I have been using the spare time at my disposal to work at mathematics. I have not gone through the conventional regular course which is followed in a university, but I am seeking a new path for myself. I have made a special investigation of *divergent series, and the results I have are termed by the local mathematicians as "amazing."

What caught Hardy's attention was a mathematical formula in the letter that didn't seem to make sense at first. Upon further inspection, however, Hardy realized that it was a version of the *Riemann zeta function, an extremely complex mathematical concept. Hardy had never seen anything like it before, and quickly concluded that he was dealing with a mathematical genius.

#3 From India to England

Hardy invited Ramanujan to come to England, where they could work together. Over the next five years, Hardy served as Ramanujan's personal mentor. Although the two men had very different personalities, they worked well together. Under Hardy's guidance, Ramanujan's genius was finally allowed to fully develop. He received a degree in mathematics from Cambridge and became a Fellow of the Royal Society, only the second Indian to do so. His work is still widely used today in *statistical dynamics, computer science, and code breaking.

Ramanujan was a genius with a mind that worked more mathematically than most. There is one story about a conversation that took place when Hardy was visiting Ramanujan in the hospital. After inquiring about Ramanujan's poor health, Hardy casually mentioned that his taxi's number had been 1729, a number with no special meaning. After thinking for a moment, however, Ramanujan disagreed. "No," he said, "the number 1729 is very special. It is the sum of the *cubes of 9 and 10." He went on to explain that it is also the sum of the cubes of 1 and 12, as well as the first number that can be divided by the sum of the cubes of two different numbers. Hardy was so stunned that he could not even reply.

#4 Gone Too Soon

As a vegetarian, Ramanujan had trouble getting the proper nutrition due to the lack of food during World War I, and it was not long before he had health problems. In 1919, he returned to India to recover his health, but passed away soon afterwards at the age of 32. Despite dying young, Srinivasa Ramanujan had an enormous impact on the world of mathematics.

Yet, had it not been for G.H. Hardy, his genius might never have been recognized. Have you ever met someone who saw something special in you? Everyone has a special gift, but many people live and die without ever discovering theirs. You may feel like you don't have one, but it just means you haven't found it yet. Perhaps one day you'll have a mentor who will recognize your hidden abilities and help you develop them.

*Now that you've finished the story, please comment on what you think and feel about the story as a whole. Comment in particular on how the ideas here relate to our inquiry.

Assignment #1

THREE-LEVEL READING GUIDE

Hidden Genius

I. ON THE LINES. Directions: Check the statements that you believe what the author says. Sometimes the exact words are used; at other times, different words may be used. You should be able to point to one section of text that informs your response.

- ___ 1. The author introduces the background of Ramanujan.
- ___ 2. Ramanujan's hardship had nothing to do with the Caste.
- ___ 3. The main obstacle to learning Ramanujan faced was a financial problem.
- ___ 4. Ramanujan was too passionate about studying mathematics that he lost a chance of getting scholarship in university.
- ___ 5. G.H. Hardy invited Ramanujan to England to test his mathematical ability.

II. BETWEEN THE LINES. Directions: Check the statements that you feel represent the text's *implied meaning*. You will have to connect text information to information to other sections of this texts, other texts, or your life and world knowledge.

- ___ 1. G.H. Hardy might have been a generous man to provide full support for Ramanujan.
- ___ 2. If G.H. Hardy had ignored the letter of Ramanujan, he might have never been recognized as a mathematical genius.
- ___ 3. Ramanujan would have tried to find all possible ways to learn what he loved.
- ___ 4. Ramanujan should have changed his lifestyle to survive in time of difficulty.

III. BEYOND THE LINES. Directions: Check the statements that you agree with and be ready to support your choice with ideas from the text and your own knowledge. You will need to think about the issues raised in ways that are generalized and go beyond this text to other situations in the world.

- ___ 1. If people have true passion and talent, they can succeed despite any bad situations.
- ___ 2. Even if people have different personalities, we can cooperate and make successful outcomes we hope.

___3. Everybody has a special gift, so with the help of a mentor everyone can bloom.

(Format from Chapter 5: Reading Between and Beyond the Lines. P.115)

Assignment #2

Your Own Questions

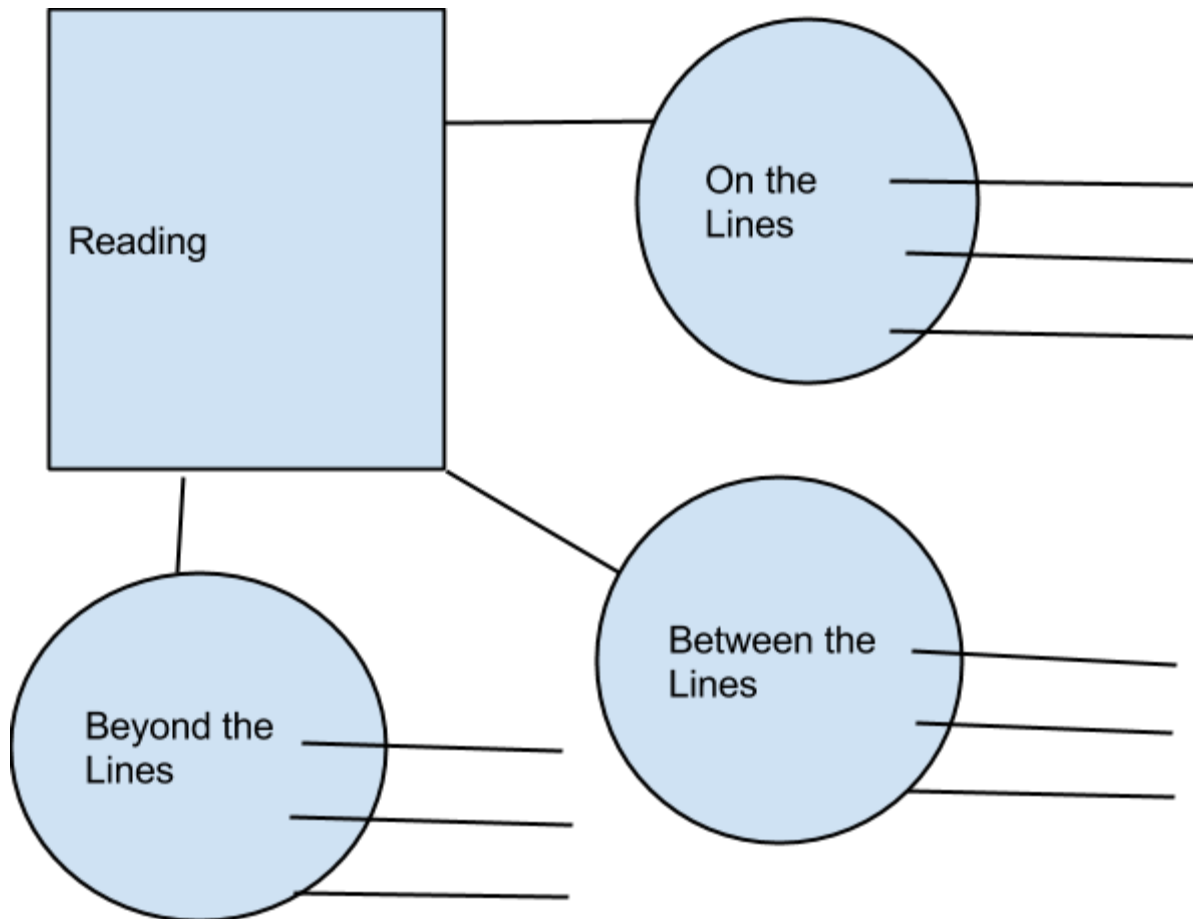
Hidden Genius

❖ ON THE LINES

❖ BETWEEN THE LINES

❖ BEYOND THE LINES

Group Poster #1



Group Poster #2 - Open Discussion

Reading

Questions

On the Lines

Between the Lines

Beyond the Lines

Answers

References

Graham, S., MacArthur, C.A., & Fitzgerald, J. (2007). *Best Practices in Writing Instruction*. Guilford press.

Wilhelm, J.D. (2007). *Engaging Readers & Writers with Inquiry*. Scholastic Inc..

Hinchman, K.A., & Sheridan-Thomas, H.K. (2008). *Best Practices in Adolescent Literacy Instruction*. Guilford Press.

Samuels, S.J., & Farstrup, A.E. (2011). *What Research Has to Say about Reading Instruction* (4th ed.). Newark, DE: International Reading Association.