

Bilkent University
Graduate School of Education
TE 510: Curriculum and Instruction

5 Weeks Interdisciplinary Curriculum Plan

“EARTH”



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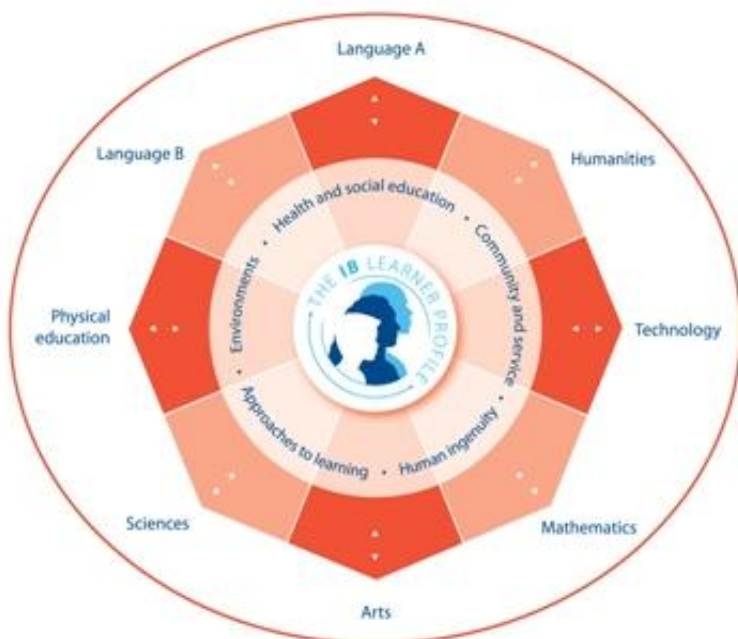
GRADUATE SCHOOL OF EDUCATION- BİLKENT UNIVERSITY
TE-510: Curriculum and Instruction
Rationale for 5 Weeks Curriculum Plan

We have chosen the topic “Earth” for our five weeks interdisciplinary curriculum because this topic provides us to make a good connection between subject areas. Earth is a comprehensive topic including various and necessary facts and details that can be covered in English, Mathematics, Biology and Turkish Language and Literature. In addition, we want our students to evaluate their environment with different perspectives as well as creating a unique relationship with nature. We require our students to become international minded people who recognize the common humanity and share the guardianship of the planet.

Our guiding questions:

- How can we develop students’ understanding of sharing and caring of their planets?
- How can we link theoretical information with real life experiences?
- How can we introduce Earth according to different subject areas?
- How can we use the subtopics of Earth in different disciplines? (i.e. evolution, nature.)
- How can we raise students’ awareness of current world issues?

One of the most important objectives is making logical connections between our curriculum and IB learner profile. To accomplish this objective, we expect our students to have open and international minded approach towards current world issues and controversial theories such as evolution. Therefore, the students are required to prepare a portfolio including what they have learned at the end of five weeks.



Our interdisciplinary curriculum is for 8th grade students, it is a mixture of MEB and IB curricula. Each discipline uses interdisciplinary subtopics in their lessons. We apply MYP Program which includes Community, Service and Environment in its core. To realize this goal, we organize a camp experience for students at the last week of our curriculum. For Community and Service purposes, students plant trees, take care

of their environment for one week, collect garbage and learn how to recycle. It is also the interdisciplinary week through which students integrate all the knowledge from different subject areas. Through camping activities, teachers can help students to gain an understanding of related concepts and issues by guiding their investigations through the perspectives of awareness, responsibility, action and reflection. ([www. Ibo.org](http://www.Ibo.org))

Turkish Language and Literature: 5 hours per week. We discuss per week a different issue with students. I try to share information with articles, textbooks, reading texts and pictures also I try to involve students actively with verbal presentations, power points, group works and dramas. My assessments will be made according to these criteria.

Mathematics: 4 hours per week. As Mathematics group, we want students to make real life connections with mathematics to help them improve critical thinking skills, study skills and problem solving skills through cognitive approach. To provide this, we encourage students to make investigations, discussion and interpretation and to enhance students' cognitive skills, we follow developmental perspective. Moreover, our curriculum is constructed with holistic perspective because we combine mathematical topics in each week and we want students to look mathematics as a whole. We provide an environment that students can have a chance to express themselves in incentive atmosphere. In addition to this, we adopt pragmatic approach by making relations to real life and mathematics. By this, we provide them with different perspectives about Earth. With the help of mathematical topics in our curriculum, we want to make students aware of world issues that give students humanistic perception.

English: 6 hours per week. As English group, our objective is to use cognitive thinking to have students develop a link between their experiences and environment via target language. The aim is to construct meaningful knowledge of our theme. We expect our students to identify world problems and consequences through using target language. We construct knowledge from simple to complex; that is we start from easy tasks such as writing paragraphs of reflection and then continue with more inclusive tasks such as presentations, group works and debates. During the first two weeks, we want our students to know common terms, comprehend the information, whereas through the end of five weeks, we expect our students to be capable of organizing, reconstructing and applying their knowledge in their daily life. In addition to comprehension skills, students will develop their four skills; writing, speaking, listening, and reading.

Biology: 2 hours per week. As a biologist's perspective, biology curriculum should be designed to continue student investigations and deepen students' understanding of the

biological sciences. Inquiry should be the central theme in biology. Inquiry is an integral part of the learning experience and may be used in both traditional class problems and laboratory experiences. The essence of the inquiry process is to ask questions that stimulate students to think critically and to formulate their own questions. Observing, classifying, using numbers, plotting graphs, measuring, inferring, predicting, formulating models, interpreting data, hypothesizing, and experimenting all help students to build knowledge and communicate what they have learned. During four weeks students would be able to build their knowledge about earth through the biological perspective. In the fifth week, they would be able to display their performance during the camp experience by combining the other subject areas in a good way.

Teaching Techniques

In our interdisciplinary curriculum, humanism and cognitivism are our philosophies. We want student to learn how to share our world with other beings in respectful manner. We try to improve their cognitive skills. We want to teach our students how to learn. As teachers we try to help students find self-fulfillment, develop effective learning styles.

As teachers, we have three different perspectives. First one is development perspective. In each subject area, we adopt a constructivist approach. Therefore, we use discovery learning techniques rather than mastery learning. We tried to develop their reasoning and problem solving skills; that is why we use questions, problems, group works and case studies in our lessons. Throughout their learning process, we will monitor our students closely and support their development but not in a strict way rather with the technique of scaffolding. We intentionally give our students group and project tasks in order to teach them about how to work in a team. In this way they will learn to be organized as a group and they will have a chance to learn from each other. Furthermore, we expect them to prepare a portfolio to see their progress from the beginning to the end of our five weeks' curriculum. Second perspective is nurturing perspective; during their learning process we provide encouragement, support and clear expectations. We respond to their emotional and intellectual needs. To do this, we use cooperative learning and give positive feedback. Lastly, we adopt social reform perspective; our intention is to create better society. In order to rich this aim; we expose our students to all kinds of knowledge from different angles.

Classroom Activities

Our activities are based on class discussions and brainstorming, we organize group activities involving students' assessment of each others. We also use experimenting in our science courses.

Resources and Materials

We use some videos, pictures, textbooks, reference books, short stories, lab booklet, articles, documentaries, PowerPoint presentations, statistics about Earth and websites. For classroom materials, we use board, projector, computer, and document camera. For our fifth week which is camping, we use nature as the ultimate source for our interdisciplinary course.

Assessment

Assessment is of secondary importance for us, for we are firstly interested in students' progress and their through understanding of the world. Therefore, in order to complete this progress, we give tasks to students mostly based on their evaluation and critical thinking skills. We use formative assessment during the courses to test their knowledge of the area; we also use summative assessment while evaluating portfolios and presentations. Another assessment technique we use is peer assessment we let the students evaluate each other in terms of team work. We perceive that assessment is for learning. We basically asses their group works, presentations, portfolios, their participations and attendance to the activities in the class.

Five Week Overview: English

Week 1:

During our first week, teacher's aim is to introduce the topic of Earth in a general sense. Therefore, students study life on earth and old lifestyles. The teacher wants to make this lesson fun by including the video of *Flintstones*, which attracts everyone's attention. Then, they discuss their reflections of the video in groups. The aim is to make an effective and strong start as well as providing them visual aid about the topic. After they watch, they take a pre-quiz on earlier lifestyles, and the purpose of this quiz is to activate their previous knowledge. This quiz also helps the teacher to determine how much the students know prior to the instruction. Then, students brainstorm on their answers of the quiz among themselves.

She uses the method of TTT (Teach-Test-Teach) during grammar instruction, which enables her to teach past tense implicitly. She does not give any direct information on past tense; rather she lets the students guess the form through the class discussion about *Flintstones* and dinosaurs. Her aim is to contextualize grammar so that they can easily connect the topic to their own experiences; therefore, she tries to personalize the lesson by having them to talk about their own past habits later. Also, the teacher introduces new vocabulary about habitats and species via textbook. She assesses informally their performance throughout the lesson, does not give any grade to the pre-quiz; but she gives a writing assignment on their past habits. They are required to use past tense and new vocabulary in their task and it will be graded.

Week 2:

The second week's topic is evolution and exploring Darwin's life and legacy. Students will be encouraged to identify the structure of 'used to'. To warm up and revise, students are given a worksheet on past tense. Then, they are introduced to "used to", again with TTT method. They compare and contrast human beings and animals before and after evolution using 'used to'. To enrich the topic, the teacher provides students with different kinds of visuals such as PowerPoint, funny evolution pictures and articles. This week, students are required to read and analyze a given text on Darwin. The aim is to integrate past tense and used to, therefore students are asked to write a short paragraph using them. Plus, the homework is graded.

Week 3:

This week's topic is nature, animals and plants. During the third week, the students are expected to read and understand more complex texts such as a short story. For this reason, they are studying Jack London's short story "To Build a Fire", which is about a man's struggle against nature. The teacher uses methods of discussing, brainstorming, questioning in order to elicit information. In order to attract their attention, visual aids are used such as a video about London's biography. To raise the level of their creativity and imagination, the students are asked to draw a picture about their own interpretation of story's ending. Also, they prepare comprehension questions and discuss among themselves. For assessment purposes, the pictures and comprehension questions are collected. To see their development, a quiz on past tense and "used to" is given. These activities will develop their over all writing and reading skills in English.

Week 4:

This week's topic is more complex and inclusive; therefore the teacher arranges the activities accordingly. The topic is population and world issues, and at the end of this week the students will be able to interpret current issues such as deforestation, global warming, famine, poverty and natural disasters. They discuss how people all around the world handle these problems. They identify different registers such as newspapers, articles or websites. In addition, they will develop their communicative skills in English through class discussions and presentations. In groups of 3-4, they pick a problem and present it with possible solutions. The purpose of the presentation is to improve their ability of choosing the correct register and forming as well as defending their ideas in English. At the end of the week, the students watch an interesting movie (2012) about the topic and criticize it in class. Assessment is based on peer and teacher's reflection on presentations. Participation in class discussions is also considered.

Week 5:

Last week of the curricula is dedicated to camping, which will enable student to integrate all the knowledge from all subject areas and interpret them from different aspects. For English, the students are required to write a journal for each day during the camp. The journal includes their observations, reflections and newly acquired knowledge. Also, using critical analysis and interpretation techniques is a must while writing their journals. For vocabulary improvement, they are expected to create a list of plants and animals that they saw during the camp. To improve their speaking skills, some specific hours are spent for speaking only English. The portfolio is assessed as a final and over all grade is given at the end of the five week.

The idea of camping is part of MYP program of IB Curriculum which includes community, service and environment. The purpose of the camp is to raise students' awareness of the local and global environment. Also, it emphasizes understanding the links between economic, political and social issues, and how these affect the environment. The students are expected to develop positive and responsible attitudes towards their environments at the end of camping experience.

English Language Topic: Earth by Müge Karayaylı and Nagihan Aydın

Weeks	Subtopics	Instructional Objectives	Teaching Methods	Activities	Resources	Assessment	Duration
Week 1	<i>Life on Earth(habitat, species, dinasours)</i>	Students will be able to identify structure of past tense, build new vocabulary, develop conversational skills, talk about their past habits.	Teacher directed questioning, eliciting, visual aids, Student-centered discussion, brainstorming and TTT method.	Pre quiz: The students work individually and try to answer questions about earlier life styles. Watching video 'Flinstones' and group work.	Textbook, pre quiz worksheets, video, board, vocabulary list.	Pre quiz is not graded. Asking direct questions, informally assessing their reflections and homework.	80'
Week 2	<i>Evolution</i>	Students will be encouraged to identify the structure of 'used to', recognize Darwin and his legacy, analyze the given text and revise past tense through Darwin's biography.	Eliciting, visual aids, teacher directed, student-centered discussion, and TTT method, reading.	Students do exercises and answer questions about past tense. The students are introduced with 'used to'. They compare and contrast human beings and animals before and after evolution using 'used to'.	PP on Darwin's biography, funny evolution pictures, reading article, worksheets, grammar book and board	Informal assessment on participation. A short paragraph integrating 'used to' and past tense. Homework: Web search on Darwin and his theory.	80'
Week 3	<i>Nature, animals and plants</i>	Students will able to analyze Jack London's "ToBuild a Fire" and discuss their opinions about the themes of the short story.	Reading, student-centered discussion, acquiring information answering & asking questions, collaborative learning	Students watch a video on Jack London's life and works. They discuss the interaction between human & nature and debate on the consequences of this interaction. Students prepare comprehension questions about the story and ask each other. They try to guess the end of the story and draw a picture of their own ending.	Video on London's life. The text of "To Build a Fire". http://www.youtube.com/watch?v=WTOMXehupbg	Pictures are collected,but not graded. Homework: Preparing comprehension questions. Quiz on past tense and "used to".	80'

Week 4	<i>Population & World Issues</i>	Students will be able to interpret current issues such as deforestation, global warming, famine, poverty and natural disasters. They discuss how people all around the world handle these problems. They identify different registers such as newspapers, articles or websites.	Acquiring information, organizing information, answering questions, analyzing information, brainstorming	Students are given different kinds of texts in order to identify registers. They discuss on world issues. In groups of 3-4, they pick a problem and present it with possible solutions. At the end of the week, they watch a movie and generate their ideas.	Articles on world problems from different sources. Movie: 2012	Participation and effort are taken into consideration. Presentations are graded. Peer assessment is also included.	80'
Week 5	<i>Interdisciplinary Week Core of MYP Program, Community and Service, Environment Field Trip & Camping: Camp in Kaz Mountains in Balıkesir</i>	Students will be introduced to natural environment and apply what they have learned to real life situations. They will integrate all the knowledge from all subject areas and try to interpret them from different aspects.	Group investigation, experimenting Learning through experience, use of real-life learning opportunities, problem solving.	One week long Camping. Students are given a chance to explore nature and different tasks for each subject area. (See, weekly plans for activities) MYP Activity: Planting trees, collecting garbage, discovering recycling.	Nature Websites: http://www.kazdaglari.com/ http://www.tema.org.tr/ http://www.geridonusum.org/ http://www.recycling-guide.org.uk/	Preparing an Individual Portfolio, including all the tasks required from each subject area. Portfolio will be graded and considered as final assessment.	1 week

Five Week Overview: Mathematics

As a mathematics group, our general aim when we create a curriculum is how we provide students to think mathematics as a whole. Therefore, we generally try to construct relations between the topics. Our topics are graphs, number sequences and probabilities and statistics which are related to each other closely and which are also directly related to our topic, Earth. Therefore, we do not separate the topics week by week; instead we prefer to integrate them.

Week 1:

In this week, the outline of 5 week curriculum and the subtopics of each week are given and introduced to students. After that the teacher starts an introduction about the life on Earth by watching a documentary which shows the diversity of living things. After the video, the teacher creates a discussion environment to have students understand the importance of investigation and research by questioning and brainstorming. Therefore, the aims of these lessons are to teach students how to conduct a reliable research. After discussion, the teacher introduces the steps of investigation by synthesizing the ideas and comments of students. These steps are finding a question, collecting data, categorizing data and recording them. by this way, the students comprehend the way of constructing a table.

As homework for the following two hours lesson of first week, the teacher wants the students to make an investigation on living things generally by following these steps such as categorizing animals according to their diets. Then the students will present their tables to class for next two hours and the class will make discussion and the teacher provides them to find the relations between their tables by again questioning and brainstorming with the little direction of the teacher. By this way the students both learn how to construct a table and recognize the diversity of living things.

The presentations will be assessed both by teacher and peers. Peer assessments provide students involvement in measurement and by this way the homework take serious. Also their participation will be informally assessed. Also written assignment will be assessed.

Week 2:

During this week, evolution with respect to extinction of species is discussed. The lesson starts with again a video about dinosaurs to warm up the students and discussion what the students know about the dinosaurs. After that the teacher gives the statistical data about dinosaurs, and wants students as an individual to construct a table according to years. Then the students is learnt to present the data in different ways by using different types of graphs such as bar graph, pie charts etc with the help of explaining of teachers.

As homework for the following two hours lesson of second week, the teacher wants the students to make a research about endanger species. The students construct a graph of population an endanger specie according to years and the teacher wants the students a well organized written document that contains their findings, interpretations, comments and assumptions in the long run. The students share their work with the class. And their work will be assessed again both the teacher and peers. Also with two week periods, the students will be assessed with learning logs to have an idea about their learning process.

Week 3:

In this week, our subtopic is animals and plants. The teacher introduces the number sequences at the beginning of the week with the examples. After the explaining increasing and decreasing sequences with the rules, the teacher gives them an exercise sheet. With group of three, the students find a correlation between the populations of endanger species and sequences.

As a written assignment, the teachers give students a research about the Fibonacci sequences, by this way students will encounter with the relations between reproduction of rabbits and the Fibonacci Sequences, generally the students will see the relations between the nature and Fibonacci sequences that help us to create a link with our subtopic, animals and plants. The teacher uses the summative assessment to evaluate the written homework.

Week 4:

During this week, our subtopic is population and world issues. With the help of the students' previous findings in week 2 and week 3 about species, the teacher provides students an introduction to probabilities and statistics. In week 2, the students construct a graph of endanger species according the years under the topic evolution, after that in week 3, the students examine the graphs by thinking the number sequences of endanger species with a common rule (at which proportion it decreases) under the topic animals and plants. And in this week, the students try to make assumption about extinction time of these species with considering the probability and statistic. Therefore, the teacher integrates the topics, graphs, number sequences and probability and statistics. As a world issue, global warming is explained with a video to the students. After that the teacher gives a mathematical modeling problem sheet including the statistical data about global warming as a group work. After that the students present their findings to the class. By this way, the teacher raised the students' awareness toward the world issues.

Also learning logs is applied to the students at the end of the week.

Week 5:

Last week of the curricula is dedicated to camping, which will enable student to integrate all the knowledge from all subject areas and interpret them from different aspects.

Both biology and math teachers want students to collect data about the habitats of the camping area and organize these data according to previous weeks' subjects: constructing table, graphs and statistical thinking which are necessary for both biology course and math course. Also the students have a chance to observe Fibonacci sequences (the sequence is derived from reproduction of rabbits by Fibonacci who is mathematician.) in the camping environments such as by observing the cones, the plants etc. In addition a group task is given to the students that aim to make an assumption of the population specific species by probability and statistics. After getting familiar to the environment, students firstly choose an animal, commonly an insect. Then students collect the sample and signed the each member of the sample and record their numbers then released them. The day after, the students find new sample and record the number of previously signed and total sample. This process continues for five days and at the end of the week students will make an assumption for the population o this specie in this area. The task is included two different subject areas which are biology and math as an interdisciplinary work.

The portfolio is assessed as a final and overall grade is given at the end of the five weeks. The teacher wants to see their findings, observations, interpretations, comments and reflections in the camping activity in their portfolio. Furthermore the portfolio should include all written assignments, peer assessment, learning logs of the students with their reflection.

The idea of camping is part of MYP program of IB Curriculum which includes community, service and environment. The purpose of the camp is to raise students' awareness of the local and global environment. Also, it emphasizes understanding the links between economic, political and social issues, and how these affect the environment. The students are expected to develop positive and responsible attitudes towards their environments at the end of camping experience.

MATHEMATICS TOPIC: EARTH

Weeks	Subtopics	Instructional Objectives	Teaching Methods	Activities	Resources	Assessment	Duration
Week 1	<i>Introduction to Life on Earth</i>	<ul style="list-style-type: none"> • Students will aware of the diversity of living things. • They will construct a question in order to make research. • According to the question, they will collect data. • They will categorize the species according to collected data. • They will construct table. 	Teacher directed Questioning/Answering, Investigation/research, Acquiring information, Organizing information	<ul style="list-style-type: none"> • Watching a video which shows the diversity of living things. After video create a discussion to make students understand the importance of investigation and its steps. • As a homework for next lesson, give students an investigation about living things in earth by following to investigation steps and construct a table according to data and then want them to bring their work on an well organized paper. • Then ask students to persent their investigation to class and create a discussion to find the relationships between livng thing. 	http://vimeo.com/9176339	<ul style="list-style-type: none"> * Formative assessment by questioning and observing students' engagement to lesson. • Peer assessment • Summative assessment to written assignment of homework 	160 '
Week 2	<i>Evolution</i>	<p>Students will construct graphics of species according to evolution period. (with bar charts, pie charts etc.)</p> <ul style="list-style-type: none"> • Students will analyze the graphics. • Students will interpret the graphics. 	Student-centered discussion, Investigation/research, Acquiring information, Organizing information, Using visual aids, Using technology	<ul style="list-style-type: none"> • Want students to make a discussion about dinosaurs and give them a worksheet including statistical data about dinosaurs and want them construct a table of extinction of dinosaurs according to years. • As a homework, Want students to make a research about endanger species and choose one of them and construct a graph of population of these species according to years. • Want them to how their interpretations and assumption in the long run. 	<ul style="list-style-type: none"> • Worksheet including data about extinction of dinasours. • the website : http://dsc.discovery.com/videos/dinosaurs-permian-extinction-death-and-life.html 	<ul style="list-style-type: none"> Formative assessment by questioning and observing students' engagement to lesson. • Summative assessment to written assignment of homework * Learning Log 	160 '

Week 3	Animals & Plants	<ul style="list-style-type: none"> • Students will identify the number sequences by making correlation with evolution. • Students will recognize the Fibonacci sequence by analyzing the reproduction of animals. • Students will identify the sequences in plants. • Students will construct and examine sequences. 	Questioning/Answering, research, examples, Showing	<ul style="list-style-type: none"> • Give activity sheet about Fibonacci sequences. • With the help of previous week, want students to make a group work to find the correlation between the population of species and sequences. Want them to see a common rule while they are increasing or decreasing. • As written assignment, making research about Fibonacci's sequences in their environment, provide students learn Fibonacci sequence. • Show students a few examples of plants (sun flower) that have sequence and then dividing students into groups, want them to examine sequences of plant that is given to each group. 	<ul style="list-style-type: none"> • Activity sheet related to Fibonacci sequences retrieved from: *http://www.landlearn.net.au/newsletter/2008term3/page3.htm • The book for Fibonacci Sequences : Real life Math: Every day use of mathematical concept written by Evan M. Glazer and John W. Mcconnell. 	<ul style="list-style-type: none"> *Formative assessment by questioning and observing students' engagement to lesson. • Summative assessment to written assignment of homework 	160 '
Week 4	Population & World Issues	<ul style="list-style-type: none"> • Students will recognize the endanger species by making correlation of evolution. • Students will construct graphs and make interpretation by thinking probabilities of the extinction. • Students will improve their 2nd week graphs of endanger species with respect to probability and statistics. • By the help of probability, students will make interpretations about world issues. 	Group discussion, Analyzing data, technology Using	<ul style="list-style-type: none"> • With the help of previous weeks, want students to make brain storming to find the correlation between the populations of endanger species and probability of their extinction. • By using the 2nd week graphs, want students individually to present the probabilities of extinction of these species. • After showing a video about Global warming, give students a mathematical modeling problem including statistical data about global warming as a group work and want them to present their modeling. 	<ul style="list-style-type: none"> • A mathematical modeling worksheet about Global warming. • The video about global warming from the website: http://www.5min.com/Video/What-is-Global-Warming-38356558 	<ul style="list-style-type: none"> * Formative assessment by questioning and observing students' engagement to lesson. * Learning Log 	160 '

<p>Interdisciplinary Week Core of MYP Program, Community and Service, Environment <i>Field Trip & Camping: Camp in Kaz Mountains in Balıkesir</i></p>	<p>Students will be introduced to natural environment and apply what they have learned to real life situations. They will integrate all the knowledge from all subject areas and try to interpret them from different aspects.</p>	<p>Group investigation, experimenting Learning through experience, use of real-life learning opportunities, problem solving.</p>	<p>One week long Camping. Students are given a chance to explore nature and different tasks for each subject area. (See, weekly plans for activities) MYP Activity: Planting trees, collecting garbage, discovering recycling.</p>	<p>Nature Website: http://www.kazdaglari.com/ http://www.tema.org.tr/ http://www.geridonusum.org/ http://www.recycling-guide.org.uk/</p>	<p>Preparing a Individual Portfolio, including all the tasks required from each subject areas. Portfolio will be graded and considered as final assessment.</p>	<p>1 week</p>
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Five Week Overview: Biology

Week 1:

For the first week, as a biology teacher she wants to point out some knowledge about Life on Earth, and mention the characteristics of living things. Also, she is going to explain the diversity of living things and the theories about the beginning of life on earth. Students can find the answers of following questions in this course: What Are the Characteristics of Living Things? How Do Scientists Categorize the Diversity of Life? Here is the living organisms' diversity:

KINGDOM	NUMBER OF SPECIES
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Bacteria.....	4,000
Protista (algae, protozoa, etc).....	80,000
Animals, vertebrates.....	52,000
Animals, invertebrates.....	1,272,000
Fungi.....	72,000
Plants.....	270,000

Total number of described species... 1,750,000

Possible number with unknown species: 14,000,000

From the United Nations publication: UNEP-WCMC (2000). *Global Biodiversity: Earth's living resources in the 21st century*. Cambridge, World Conservation Press.

Students will watch videos about the life on earth. Group work can be organized in order to discuss theories of beginning of life. Students are assessed informally by taking into consideration their performance throughout the lesson.

Week 2:

The second week's topic is evolution and exploring Darwin's theory. Students will be able to state the processes of evolution and imagine how evolution happens after watching video. The students will demonstrate the acquisition of basic skills for the study of evolution. They will be able to describe the scientific method of inquiry, provide examples of it use and demonstrate this method through written lab reports. To warm up and revise, students are given a worksheet on evolutionary process. To enrich the topic, the teacher provides students with different kinds of visuals such as

power point presentation, and evolution pictures. This week, watching video about how evolution happens, what are the processes during the mechanism of evolution for living organisms are identified by students. Answers of the questions as an informal assessment can be used for this week.

Week 3:

This week's topic is diversity of animals and plants. They already learned some information about varieties of animals and plants during the first week lessons so they need to apply their previous knowledge and then they need to construct new information about the day's topic in this third week. This concept will provide a constructivist approach for this week. The teacher uses methods of discussing, brainstorming, questioning in order to elicit information. To raise the level of their creativity and imagination, they will prepare a poster which will be formed by their creativity. Preparation of posters about 5 different animals and plants species which are endangered will be graded. This can be graded by peer assessment. Their homework will be also graded which is about the dichotomous key with several plant and animal species.

Week 4:

This week's topic is more complex and inclusive; therefore the teacher arranges the activities accordingly. The topic is population and world issues, and at the end of this week the students will be able to interpret current issues such as deforestation, global warming, famine, poverty and natural disasters. They discuss how people all around the world handle these problems. They also discuss with groups: How evolution may happen in any population? This is important to remember the second week in order to integrate with this week. After the discussion, they will watch video about "How does a population grow?" Assessment is based on peer and teacher's reflection on their group works' discussions. Participation in class discussions is also considered.

Week 5:

Last week of the curricula is dedicated to camping, which will enable student to integrate all the knowledge from all subject areas and interpret them from different aspects. For Biology, the students are required to write a report for each day during the camp. This paper includes their observations, reflections and newly acquired knowledge. Also, using critical thinking and interpretation and discussing techniques about the life on earth is a must while writing their reports. At the end they will submit their portfolio and then this will be assessed as a final and over all grades is given at the end of the five week.

Both biology and math teachers want students to collect data about the habitats of the camping area and organize these data according to previous weeks' subjects: constructing table, graphs and statistical thinking which are necessary for both biology course and math course. Also the students have a chance to observe Fibonacci sequences (the sequence is derived from reproduction of rabbits by Fibonacci who is mathematician.) in the camping environments such as by observing the cones, the plants etc. In addition a group task is given to the students that aim to make an assumption of the population specific species by probability and statistics. After getting familiar to the environment, students firstly choose an animal, commonly an insect. Then students collect the sample and signed the each member of the sample and record their numbers then released them. The day after, the students find new sample and record the number of previously signed and total sample. This process continues for five days and at the end of the week students will make an assumption for the population o this specie in this area. The task is included two different subject areas which are biology and math as an interdisciplinary work.

The idea of camping is part of MYP program of IB Curriculum which includes community, service and environment. The purpose of the camp is to raise students' awareness of the local and global environment. Also, it emphasizes understanding the links between economic, political and social issues, and how these affect the environment. The students are expected to develop positive and responsible attitudes towards their environments at the end of camping experience.

Biology Topic: Life on Earth, Ezel Tekin

Weeks	Subtopics	Instructional Objectives	Teaching Methods	Activities	Resources/ Materials	Assessment	Duration
Week 1	<i>Introduction to Life on Earth</i>	Students will be able to point out the some knowledge about Life on Earth, and identify the characteristics of living things. Also, students will be able to explain the diversity of living things and the theories about the beginning of life on earth.	Demonstrating, teacher-directed questioning, explaining some basic terms about life on earth topic and encourage cooperative learning (Collaborating).	Group work can be organized in order to discuss theories of beginning of life, watching videos about first life and introduction to the origin of life.	text books, internet address: http://www.biology-online.org/10/1_first_life.htm , http://vimeo.com/groups/7648/videos/16794275	<u>Asking direct questions to the students about the videos and their group work performance during the courses</u>	80 '
Week 2	<i>Evolution</i>	Students will be able to state the processes of evolution and imagine how evolution happens after watching video. The students will demonstrate the acquisition of basic skills for the study of evolution.They will be able to describe the scientific method of inquiry, provide examples of it use and demonstrate this method through written lab reports.	Teacher directed questioning, watching, discussing explaining the natural selection as a mechanism of evolution and the evidence for evolution and cooperative learning	Watching video about how evolution happens, what are the processes during the mechanism of evolution for living organisms	http://www.5min.com/Video/How-Evolution-Happens-4804307	Answers of the questions - informal assessment.	80 '

Week 3	<i>Nature, Diversity of Animals and Plants</i>	<p>Students are able to identifies the varieties of different plants and animals in the life on earth, and Biodiversity: Current levels of diversity and benefits of diversity. Also, they are able to analyze the reasons about that "Why Have Some Species Become Endangered?"</p>	<p>Demonstrating, explaining the diversity of animals and plants in the life on earth, scaffolding.</p>	<p>Preparation of posters about 5 different animals and plants species which are endangered.</p>	<p>http://biology.about.com/od/ecology/a/aa102408a.htm, worksheet: http://www.abcteach.com/directory/basics/science/animals/endangered_species/</p>	<p>Students' posters about several plant and animal species which are endangered will be graded by using peer assessment.</p>	80'
Week 4	<i>Population and World Issues</i>	<p>Students will be able to states the processes of population growth, and draw the graph of the population growth. Also students will be able to interpret current issues such as deforestation, global warming, famine, poverty and natural disasters. They discuss how people all around the world handle these problems.</p>	<p>Student centered questioning and answering, Distributing worksheet, drawing graphs and Collaborating</p>	<p>Discussion with groups: How evolution may happen in any population?(this is important to remember the second week in order to integrate with this week) After the discussion, watching video about "How does a population Grow?"</p>	<p>Graphs about the population growth. http://www.google.com.tr/images</p>	<p>Questioning, discussing (formative assessment)</p>	80'

<p><i>Interdisciplinary Week</i> <i>Core of MYP Program, Community and Service, Environment Field Trip & Camping: Camp in Kaz Mountains in Balıkesir</i></p>	<p>Students will be able to learn through experience. Students will be introduced to natural environment and apply what they have learned to real life situations. They will integrate all the knowledge from all subject areas and try to interpret them from different aspects.</p>	<p>Group investigation, experimenting Learning through experience, use of real-life learning opportunities, problem solving.</p>	<p>One week long Camping. Students are given a chance to explore nature and different tasks for each subject area. (See, weekly plans for activities) MYP Activity: Planting trees, collecting garbage, discovering recycling.</p>	<p><u>Nature Websites:</u> http://www.kazdaglari.com/ http://www.tema.org.tr/ http://www.geridonusum.org http://www.recycling-guide.org.uk/</p>	<p>Summative assessment: Assessing their portfolio about the trip. Preparing a Individual Portfolio, including all the tasks required from each subject areas. Portfolio will be graded and considered as final assessment.</p>	<p>1 week</p>
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Turkish Language and Literature Topics: Earth by Ali Çelik

Weeks	Subtopics	Instructional Objectives	Teaching Methods	Activities	Resources	Assessment	Duration
Week 1	<i>Introduction to life on earth</i>	Reading a article about creation of the world as literary. Also students watch a video about creation of the world as scientific. Students realize the differences between scientific and literary article and video as language and people' approaches	Teacher directed questioning, showing, explaining, associating, writting,reading	Reading articles aloudly. Students watch a video about creation of the world as scientifically. They make a creative picture work, they use articles and video to imagine and draw picture about creation of the world.	<p>1)Halk Edebiyatı El Kitabı.</p> <p>2)http://fef.kafkas.edu.tr/sosyab/tde/halk_bilimi/makaleler/turler/Destanlar/ek/destan_%20(7).pdf. (literary article)</p> <p>3)http://www.izle.net/videoizle/35385/dunyanin-yaratilisi.html. (scientific video)</p>	Asking questions. Participation during lesson. Students make a creative writting work half of the class create a story and they re-shape this story as scientific article. Other half of the class find scientific article and they re-shape it as scientific article. Students make presantations about their works.	80'
Week 2	<i>Evolution</i>	Reading an article about Darwin's evolution theory. Watching a documentary about Darwin's evaluation theory. Students bring caricatures about evolution theory and they meet with caricature in this way. Students realize diffirencies between reality and theory.	Student-centered debating, showing, writting, explaining, discovering.	Students make four group with three people and they choose a topic, they write a theory. They explain why it is a theory and discuss about it.	<p>1)http://www.evrimteorisi.org/index.php?option=com_content&view=article&id=194:charles-darwin-ve-evrim&catid=14:evrimteorisi&Itemid=108 (Darwin theory article)</p> <p>2)http://www.evrinbelgeseli.com/anayasa.html(documentary)</p> <p>3)http://1.bp.blogspot.com/_zrViSmMUU_k/SYCGXHUYfxI/AAAAAAAAAC5I/eDF8_BiDfTQ/s400/evrim.jpg%20 (caricature)</p>	Students participation. Asking questions. Students reflect their theories as caricatures and they present them in front of the class and students discuss about these works.	80'

Week 3	<i>Nature, animals and plants</i>	Making two reading. One of them is La Fontaine "Essays", other one is Şeyhi "Harname". Students meet with two kind of reading about animals. Students identify animal kinds and their place in stories.	Reading, Student - centered discussion, visual aids, discovering, group work.	I give some pictures to the groups and I ask them to create a fable examle. Students choose a fable example from La Fontaine and they make a drama about it.	<p>1) http://fenomenkomikler.blogspot.com/yazi/kurt-ve-kuzu.html(wolf-lamb)</p> <p>2) http://www.ege-edebiyat.org/wp/wp-content/uploads/karga_ile_tilki.jpg(fox-crow)</p> <p>3) http://img174.imageshack.us/i/load152506wv8.jpg/sr=1(cat-mouse)</p> <p>4) The Fables of La Fontaine (book)</p> <p>5) http://okuz.wordpress.com/category/dil/siirler/harname/(Harname)</p>	Students' participation is graded. Asking questions. They create a fabl and make a drama.	80 '
Week 4	<i>Population & World Issues(Global Warming)</i>	Watching "An Inconvenient Truth" it is about global warming and students discover the affects of global warming to our world. Bringing a column about global warming in Turkey from some Trukish newspaper. Students understand the affects of global warming on Turkey. Also, students meet with column.	Debating, reading, visual aids, discovering, group working	Giving some pictures about global warming also giving adhesives, colorful pencils and big papers to students and they make a collage work with these documents. Students work as groups.	<p>1) The film of "An Inconvenient Truth" (DVD) is watched the students.</p> <p>2) http://www.zaman.com.tr/haber.do;jsessionid=315BB5A1BB733F33E5367CD1D0FA395B?haberno=521262(gazete zaman)</p> <p>3) http://www.ilgazetesi.com.tr/2010/06/01/dunya%E2%80%99da-kuresel-isinma-ve-turkiye%E2%80%99ye-etkileri/043306/(il gazetesi)</p>	Students write an column about global warming in Turkey. They also present it and discuss with their peers.	80 '

Week 5

Interdisciplinary Week
Core of MYP Program, Community and Service, Environment
Field Trip & Camping: Camp in Kaz Mountains in Balikesir

Students will be introduced to natural environment and apply what they have learned to real life situations. They will integrate all the knowledge from all subject areas and try to interpret them from different aspects.

Group investigation, experimenting
Learning through experience, use of real-life learning opportunities, problem solving.

One week long Camping.
Students are given a chance to explore nature and different tasks for each subject area. (See, weekly plans for activities) MYP Activity: Planting trees, collecting garbage, discovering recycling.

Nature
Website:
<http://www.kazdaglari.com>
/ <http://www.tema.org.tr/>
<http://www.geridonusum.org/>
<http://www.recycling-guide.org.uk/>

Preparing a Individual Portfolio, including all the tasks required from each subject areas. Portfolio will be graded and considered as final assessment.

1 week

Lesson Plan
3rd Week Lesson Plan
Nature, Animals and Plants

Teachers: Nagihan Aydın, Müge Karayaylali
Lesson: English
Grade: 8
Course Title: Nature, Animals and Plants & Analyzing London's "To Build a Fire"

Number of Students: 12
Date of Lesson: 21.12.2010
Duration: 2 x 40min
Class: 8-A

Learning Objectives: Students will be able to:

- Analyze Jack London's "Building a Fire"
- Discuss their opinions about the themes of the short story
- Practice conversational skills and exchange ideas

Methods:

- Reading
- Discussing
- Acquiring information
- Answering & asking questions

Activities:

- Watching a video on Jack London's life and works
- Discussing the interaction between human & nature
- Debating on the consequences of this interaction in groups
- Preparing comprehension questions about the story and asking each other
- Guessing and drawing a picture of their own ending of the story

Resources:

- Video on London's life. <http://www.youtube.com/watch?v=WT0mXehupbg>
- The text of "Building a Fire".

Assessment:

Assessment for Learning: Pictures are collected. Teacher monitors the class' participation and effort by students.

Assessment of Learning: Quiz on past tense and "used to". Homework: Preparing comprehension questions. Both assignments are graded by the teacher.

Time	Teacher Activity	Student Activity
1-2	Takes attendance	Settle down
2-5	Checks the students' materials and homework	Prepare for the lesson
5-15	Displays a video on Jack London's life, asks questions related to it.	Watch the video, answer the questions
15-25	Distributes the short story	Read the story
25-45	Elicits the themes of the story, illustrates the features of characters	Answer questions, brainstorm about the themes of the short story, comment about characters
45-55	Divides the students into groups, gives instructions about writing activity which is picking a character and writing from their perspectives.	Listen, form groups and complete writing task.
55-65	Have each group present their work	Present their paragraph and exchange ideas
65- 75	Distributes quiz on 'used to' and 'past tense' for revision	Take the quiz.
75-80	Collect quizzes and end the lesson	Pack up and go out

LESSON PLAN

Teachers: Tuğba Aktan & Şakire Örmeci

Date: 21/12/2010

Class: 8/A
12

Number of students:

Lesson Length: 80 min.

Topic: Animals and Plants

Lesson Objectives:

- Students will identify the number sequences by making correlation with evolution.
- Students will recognize the Fibonacci sequence by analyzing the reproduction of animals.
- Students will identify the sequences in plants.
- Students will construct and examine sequences.

Materials: Board marker, board, power-point, one problem sheet about Fibonacci sequence, posters

Resources:

1. <http://www.landlearn.net.au/newsletter/2008term3/page3.htm>
2. The book for Fibonacci Sequences : Real life Math: Every day use of mathematical concept written by Evan M. Glazer and John W. Mcconnell.

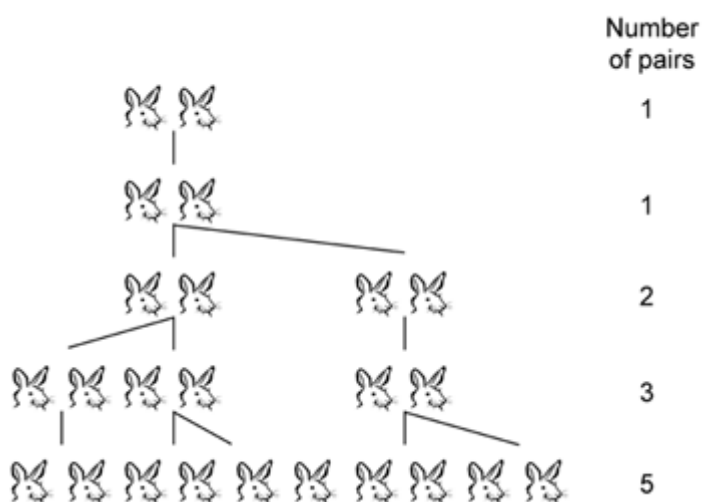
Time	Content	Teacher's Activity	Students' Activity
5'	Discussion about population of endangered species as a first look for sequences	Teacher talks about the findings in previous week, decreasing population of some species.	While listening to teacher's explanation, students make correlation between the number sequences and evolution.
15'	Definition of sequences	Teacher makes an explanation of sequences with some examples	Students listen and enhance the examples.
25'	Group work: working on problem	Teacher gives an investigation activity titled by Fibonacci and Rabbit Breeding.	Students listen to teacher's introducing the problem and try to solve the problem in

		Teacher explains the directions and the steps of the activity. Teacher moves around, checking students' process of solving the problem.	groups in a cooperative way. They write their solutions on posters.
20'	Group work: presentation and discussion	Teacher chooses one student from each group come to the board to make a presentation of their solution. Teacher leads to students' discussion after each presentation.	Students present and discuss their findings.
5'	Homework	Teacher gives necessary information about the homework.	Students listen to teacher's explanation and ask questions about homework.

Fibonacci and Rabbit Breeding

The activity

Figure 1: Fibonacci and Rabbit Breeding



1. Begin by discussing the Fibonacci sequence, using a simple example like the number of petals on flowers. Introduce the idea of using the Fibonacci sequence to calculate rabbit breeding trends. Fibonacci made the following assumptions when he came up with his mathematical pattern:

- Begin with one male and one female rabbit. Rabbits can mate at the age of one month, so by the end of the second month, each female can produce another pair of rabbits.
- The rabbits never die.
- The female produces one male and one female every month.

2. Work with the class to see if students can develop the sequence themselves. Remind them that they're counting pairs of rabbits, not individuals. Work as a class through the first few months of the problem by referring to Figure 1: Fibonacci and Rabbit Breeding

- Begin with one pair of new born rabbits. (1)
- At the end of the first month, still only one pair exists. (1)
- At the end of the second month, the female has produced a second pair, so two pairs exist. (2)
- At the end of the third month, the original female has produced another pair, and now three pairs exist. (3)
- At the end of the fourth month, the original female has produced yet another pair, and the female born two months earlier has produced her first pair, making a total of five pairs. (5)

3. Write the pattern that has emerged on the board: 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233...

Discuss the sequence: Help students understand that to get the next number in the sequence, you add the previous two numbers. As a class, continue the sequence for the next few numbers.

4. Using Excel or graph paper, get students to graph the Fibonacci sequence. Use this graph as a way of introducing types of graphical curves. How many rabbits will there be after two years (24 months)?

5. Have students develop a 'rule' for the Fibonacci sequence in relation to the rabbit breeding example, making up their own symbols for the 'rule'.

Discussion questions

Is the sequence a realistic way of calculating rabbit numbers over a period of time? Make a list of all the errors in Fibonacci's assumptions in relation to what would actually occur in nature.

Research rabbit control methods. Discuss reasons why these methods became ineffective over time and why it is necessary to use a combination of methods for effective eradication.

Investigate why rabbits have so successfully adapted to the Australian environment compared to other countries. This should include demonstrating your understanding of the different types of adaptations - behavioural, structural and physiological.

Homework

Use the 'Finding Fibonacci Patterns in Nature' activity to investigate Fibonacci numbers in their environment and write an essay about your finding.

Lesson Plan
3rd Week Lesson Plan
Animals and Plants

Teachers: Ezel TEKİN Lesson: Biology Grade: 8 Course Title: The diversity of animals and plants	Number of Students: 12 Date of Lesson: 12.01.2010 Duration: 80 min Class: 8-A
Learning Objectives: Students will understand the following: <ol style="list-style-type: none">1. Classification is the arrangement of objects, ideas, or information into groups, the members of which have one or more characteristics in common.2. Classification makes things easier to find, identify, and study.3. Scientific classification groups all plants and animals on the basis of certain characteristics they have in common.4. Scientific classification uses Latin and Greek words to give each animal and plant two names (similar to a first and last name) that identify the animal or plant.	
Materials & Methods: <ul style="list-style-type: none">• General research materials on animals and plants (e.g., biology books, encyclopedia)• Computer with Internet Access• Pictures of a variety of animals and plants• Answering & asking questions	
Activities: <ul style="list-style-type: none">• Discussing classification in general• Asking students what we mean by classification and why we classify things• Explaining Linnaeus’s system classified plants and animals on seven levels, using Latin and Greek words.• Divide your class into groups and have them devise their own system of classifying everyday objects around the room.• Advise students to use Linnaeus’s system as a model, starting out with one classification level that divides all the objects in the room into two major categories.	
Resources: <ul style="list-style-type: none">• Textbooks about “ Plants & Animals”• Internet websites• Worksheet about dichotomous key• Power point presentation	
Assessment: <p>Assessment for Learning: Teacher monitors the class’ participation and effort by students. Assessment of Learning: homework: Preparation of dichotomous key of animals and plants. Homework is graded by the teacher.</p>	

Time	Teacher Activity	Student Activity
1-2	Takes attendance	Settle down
2-5	Checks the students' materials and homework	Prepare for the lesson
5-20	As an introduction to the lesson, discuss classification in general. Ask students what we mean by classification and why we classify things. For example, why do we classify certain objects as tools, others as food, and so on? Establish that classification—the arrangement of objects, ideas, or information into groups—makes things easy to find, identify, talk about, and study.	Listening , discussing, giving everyday examples about the classification and answer the questions
20-35	As background information, let students know that, beginning in ancient times, scientists tried to develop a system of classifying animals and plants. The system we use today was developed by the Swedish naturalist Carolus Linnaeus (1707-1778), who separated animals and plants according to certain physical similarities and gave identifying names to each species.	Discussing the example in the class, bringing out the idea that each subsequent level of classification eliminates animals that could be included in the previous level. Giving examples of several mammals (the class Mammalia)
35-45	Let students discuss that it is not necessary to go through the entire seven-level classification system to identify a plant or animal. Just two names—the genus and species names—are sufficient. Thus, the scientific name for the brown squirrel is <i>Tamiasciurus hudsonicus</i> . Because two names are used, the system is known as the <i>binomial</i> (two names) <i>system of nomenclature</i> (naming).	Group work: students do some research in a biology book, encyclopedia, or online to find the genus and species names of some familiar plants and animals.
45-55	Gives instruction for the lab work. Emphasizes the safety rules while they are working in the laboratory room.	Listen, make a small group, classify the plant samples in order to make an order by forming Dichotomous Keys.
55-60	Have each group present their work	Present their work and discuss their ideas

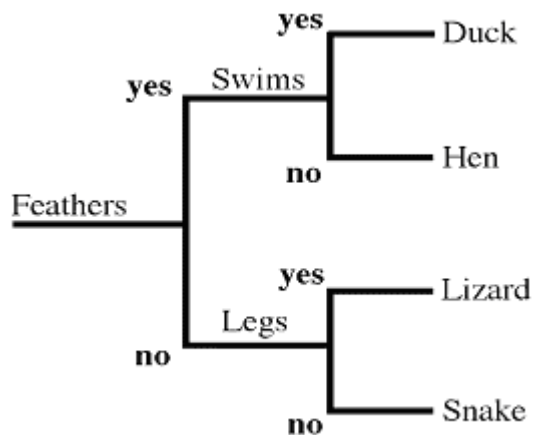
60- 75	Goes out with students; show the different plant species in the school garden. Also, talks about animal species.	Go out, observe the plants, discuss the classification of plants and animals.
75-80	Make a summary for the end of the lesson	Pack up and go out

Dichotomous Keys

Dichotomous keys are the most common keys encountered. They may be laid out in various ways, but usually form a series of numbered questions arranged in “couplets” as shown below:

- | | | |
|----|----------------------------|---|
| 1. | Bark on trunk smooth | 2 |
| | Bark on trunk rough | 3 |
| 2. | Bark mostly white | 4 |
| | Bark other colours | 7 |

Each time a question is answered, the user is directed to the number of a new question-couplet. This continues until, instead of a number, the name of the species (or other taxon) is given. This type of key is called a “dichotomous” key because the meaning of the word is "two branching", although in practice dichotomous keys often have questions with more than two choices. The structure of the key is such that each question is actually like a tree branch that has smaller branches proceeding from it, as demonstrated below for keying out four "egg-laying animals".



An example of Dichotomous Key of Evergreen Trees:

Classification Key of Evergreen Trees in Utah

1. a. Leaves scaly-like; cones are small, blue and berry-like.....go to 2
b. Leaves needle-like; cones are large and brown.....go to 3
2. a. Leaves rough; berry-like cones are about 1 inch in diameter; trunk is forked.....Utah Juniper
b. Leaves smooth; berry-like cones less than 1 in.; trunk has central stemRocky Mtn. Juniper
3. a. Needles are in bundles of two or more; cone scales are woody.....go to 4
b. Needles are not in bundles, they are single; cone scales are papery.....go to 5
4. a. Needles are about 2 inches long and twisted; cones are 1.5 inches long; trunk grows straight and tall.....Lodge pole Pine
b. Needles less than 2 inches long; cones 1-3 inches with large edible seeds, trunk is short and bushy.....Piñon Pine
5. a. Needles are flat and blunt; not sharp to touch.....go to 6
b. Needles are square; stiff and sharp to touch.....Blue Spruce
6. a. Needles point outward from twig; cone scales have fork-like tongue attached.....Douglas Fir
b. Needles bend upward from twig.....White Fir

Lesson Plan

Date: 21.12.2010

Lesson: Turkish

Student-Teacher Name: Ali Çelik

Subject: Earth

Time: 40 + 40: 80 min (block)

Grade: 8

Number of Students: 12

Objectives:

Students end of the lesson:

- Students meet with the Creation of the World Legend as literature
- Students watch a video about creation of the world as scientific
- Students explain, identify the article and video as language and people's approaches
- Students discuss about video and article
- Students' creative thinking abilities are improved
- Students' talking and writing abilities are improved

Time Table

Time	Subject	Activities
2min	Entering the class	Maintaining classroom management.
5min	Creation of the world	Asking questions about creation of the world to evaluate students' knowledge
23min	Video of Creation of the World (23dk)	Showing a scientific video about creation of the world, students realize and identify the language and people' approaches about creation of the world
10min	Reading Aloud	Reading the legend of Creation of World (summary part) and students realize and identify the language and people' approaches about creation of the world.
15min	Student- Centered Discussion	Students are separated as 4 groups, every groups have 3 students. Asking students some guidance questions, such as what they think about these articles and what are the important aspects of these article and video. Also students explain language differences between video and article. Students explain and discuss them.

10min	Group Working	4 groups which we made before start to study a creative working. They make a creative picture work, students use the knowledge which they talked during the lesson.
7min	General Revise	Asking students end of the lesson what they learned?
5min Next Week	Creative Writing Homework and	Giving students a homework that half of the class create a story and they rewrite this story as scientific article. Other half of the class find scientific article and they rewrite it as scientific article. Students make presentations about their works.
2min	Resting Assessment	Giving time to students for prepare their stuff. Students' presentations are graded, also students evaluate with their participations and discussions