Integrated Curriculum
Unit & Lesson Plans for
Big6 Information Literacy and
Grade 6 Iranian Science Curriculum

developed by Dr. Fatima Baji, 2015

This curriculum was developed by Dr. **Fatima Baji,** lecturer in the Department of Library and Information Science at the Ahvaz JundiShapur University of Medical Sciences, Iran.

The curriculum - unit and lessons - were used by Dr. Baji in an extensive study for her PhD in the Department of Knowledge and Information Science at the Shahid Chamran University of Ahvaz, Iran in 2016. For more on the research study - click here: Developing Information Literacy Skills Lesson Plans Integrated into the 6th Iranian Primary Science Curriculum based On the Big6 Model

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Unit and Lesson Plans for the 11th and 12th Units of the Iranian 6th grade science curriculum integrated into the Big6 model

Lesson Title: *Wonders of the leaf* and *To whom is the jungle*?	
Teacher's name:	**School's name:**
Keywords: Food chains, Animals, Plants	**Assessment method:** Formative & Summative
Teaching method: Inquiry, Problem-based	**Lesson's main subject:** Food Chains

Rationale: What do you want students to know, do and be like when they finish this unit of study?

Overview: Summarize the nature and scope of the unit.	Express the importance of the natural environment and ecosystem and its effects on the animals life Suggest ways to preserve the natural environment around them Write a class report about the nutritional relationships between the creatures living on their local environment
What BIG question(s) will guide	This lesson focuses on food chains and the position of every living organism in it in order to deepen students' knowledge on the animal's nutritional relationships. The students through identifying variety of relationships between the organisms will learn the importance of these relationships in natural ecosystem. This will encourage them to observe animal's behaviour in natural local environment.

this unit and focus teaching and learning?

Content Objectives:	What is food chain? What kind of coexistence is between the organisms of the ecosystem? Which species are indicators? What are the characteristics of the natural environments and ecosystems?

<table>
<tr><td>The BIG6 Model Objectives:</td><td colspan="3">Understanding of the food chains and the food networks
Observing a food chain in their local environment
Understanding the importance of plants and their role in the food networks
Understanding the ecosystem and ways of protecting it
Writing a research class report on one of the topics of the lesson</td></tr>
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How will students	Students will Work with all stages of the Big6 model with focus on the 3rd, 4th, and 5th stages which are: Location and access (Locate sources, Find information within sources), Use of information (via team work), and Synthesis including Organizing information extracted from multiple source.		
	Big6™ Skill	**Activity**	**Responsibility (Teacher/LMS)**
	Task Definition	Define the information problem Identify information needed Identify the broad and narrow topics Writing the research topic Write the research questions	Present the lesson's topics for research Teach the students how to narrow their topic and select a special topic for doing their task Introduce research process and its stages Teach how to write the research question
	Information Seeking Strategy	Determine all possible sources Select the best sources	Introduce all kinds of library resources Help students to select best resources for doing their class research
	Location and Access	Locate sources (intellectually and physically) Find information within sources	Instruct students how to use library resources (electronic and printed resources) Teach students internet search strategies and how to select keywords for search
	Use of Information	Engage (e.g., read, hear, view, touch) Extract relevant information Evaluate extracted information	Instruct students how to take research notes Instruct students how to evaluate resources
	Synthesis	Organize from multiple sources Present the information Write the research report regarding all points	Teach students how to write a research report for a class task with focus on in-text citation and references
	Evaluation	- Organize from multiple sources - Present the information - Fill the self-assessment forms of the class research project	- Instruct students how to assess all stages of the Big6 model and self-assess their research report

<p align="center">demonstrate what they have learned?</p>

Evaluation: What evidence will	Express verbally what they have learned about food chains and ecosystems in the form of individual and within a group Provide a research report on one of the lesson's topics By self-assessment of their research stages

Teaching Materials:	Formative assessment (step by step) by the teacher and librarian Summative assessment by the teacher
Resources:	Educational PowerPoint slides, The Big6 workbook, Educational pictures, The 6th grade science textbook, Educational poster ,Research notes
Learning Activities: (Describe the sequence of	The Iranian 6th grade science text-book The Iranian 6th grade science teacher guide book Teaching Information & Technology Skills: The Big6 in Elementary Schools by Michael B. Eisenberg and Robert E. Berkowitz

teaching and learning activities.)

First skill	First of all, the teacher presents the topics of the 12th lesson of the 6th grade science text-book. She/he will use the discussion method for presenting the topics. Then She/he will have an introduction on the Big6 model and its goals. Other stages of using the Big6 model in order to the research task on this lesson are as follow (we must notify that for each stage of the Big6 model we provided a separated lesson plan): Define the basic concepts and introduce the research process Grouping students into groups of 3 students Define the research problem of the class research task and narrow it Write down the research questions and identify needed information for solving it Introduce all kinds of printed and electronic resources Select appropriate resources for answering the research questions Find and locate the resources and searching in them Evaluate the resources and the information Take research notes Organize and synthesis extracted information and notes Write the class research report Cite used resources and organize the references Self-assessment of the class report and all stages of the research process

(stage): Task Definition

Task definition: 1.1 Define the information problem
1.2 Identify information needed

Grade: The 6th grade
Goal based on The Big6 model: Defining the problem and its aspects; Identifying the information needed for solving the problem
Subject: Science
Lesson focus: food chains and networks, ecosystem (natural environment)

General goals of the lesson according to the subject

This lesson aims to make students:

Understand the food chains and networks
Understand the plants role in treating the air
Explain simple relationships between various beasts

Understand the importance of the ecosystem and natural environment

The Big6 model objectives

Cognitive
Defining an information problem extracted from the lesson's topics
Recognizing ways of solving the defined information problem
Affective
Encouraging students to do group work (teamwork) through membership in a group lesson class
Behavioral
Students must be able to limit an information problem and write the broad topic and then a more narrow topic
Students must be able to write research questions for their narrow topic

Learning activities

Firstly the teacher divides students into groups of three.

Then he/she gives each group a card with some topics of the lesson written on it.

The teacher explains broader and narrower topics and gives some examples.

Then each group has 5 minutes to distinguish the broad and narrow topics of their card. The teacher asks one the members of each group to write the results on the card and present it to the class. In this step teacher helps in correcting wrong answers of each group.

In the next step, students of each group must arrange the topic of their card and select one of the broad topics for a class research project.

Then the teacher, gives each student another card to write his/her topic on it and start to narrow it. Students must do this in their teams of 3.

In the next step, the teacher explains how to write a title and questions for a research project. Then he/she asks them to write research questions for their narrow topics. The students of each group must collaborate in writing the questions on their cards. Then each student reads his/her questions for the class and other students help in correcting or editing them.

Assessment

At the end of the session, each student must be able to distinguish the broad and narrow topics.
At the end of the session each student must be able to identify his/her reach problem and write some questions about it, in order to search for answers for them in resources.
The teacher can assess learning level of the students by a quiz based on TRAILS-9 tool in the next session and through evaluating student's answers on their cards.

Second skill (stage): Information Seeking Strategies

Information Seeking Strategies: 2.1 Determine all possible sources

2.2 Select the best sources

Grade: The 6th grade	
Goal based on The Big6 model: Determining and identifying all possible information and library resources; selecting best resource according to the research problem and the information need	
Subject: Science	
Lesson focus: food chains and networks, ecosystem (natural environment)	

General goals of the lesson according to the subject

This lesson aims to make students:

Understand the food chains and networks
Understand the plants role in treating the air
Explain simple relationships between various beasts
Understand the importance of the ecosystem and natural environment

The Big6 model objectives

Cognitive

Knowing and recognizing variety of printed and electronic resources
Recognizing the best information resources for answering the research questions

Behavioral

Strengthen student's ability to recognize the variety of printed and electronic resources in the school library and other libraries
Strengthen student's ability in using all sorts of library resources for answering the class research questions
Strengthen the student's ability in recognizing the best and the most appropriate resources for finding the needed information for doing the class research

Affective

Students should will learn how to ask for help from the school librarian and learn how to use the library resources
Student's will cooperate with their parents in order to get the permission for using the internet and to find the electronic resources for doing the class research

Learning activities

n this stage, teacher asks the students of each group to write down the name of printed and electronic resources which they think that they can find the answer of their research questions in them.
Then based on the student's answers, the teachers gives some explanations about the information resources.

Followed by, the teacher takes the students to the school library, and there the school librarian teaches them how to work with and use the variety of information resources.
Finally, according to the teachers and librarian's explanations and help, students will select the best and most suitable resources to find their research question's answers.

Assessment

At the end of the session, each student must be able to define the variety of printed and electronic resources and explain the characteristics of these resources.
At the end of the session students must be able to identify and select the best and most appropriate resources for answering their research questions.
The teacher can assess learning level of the students by a quiz based on TRAILS-9 tool in the next session.

Third skill (stage): Location and Access

Location and Access: 3.1 Locate sources (intellectually and physically)

3.2 Find information within sources

Grade: The 6th grade

Goal based on The Big6 model: Locating the selected information resources and finding the needed information in them

Subject: Science

Lesson focus: Food chains and networks, ecosystem (natural environment)

General goals of the lesson according to the subject

This lesson aims to make students:

Understand the food chains and networks
Understand the plants role in treating the air
Explain simple relationships between various beasts
Understand the importance of the ecosystem and natural environment

The Big6 model objectives

Cognitive

Knowing the location of the selected information resources
Recognizing the ways of searching and finding the needed information in the resources

Behavioral

Strengthen student's ability to find the printed and electronic resources for doing the class research
Strengthen student's ability in searching the resources using table of contents and indexes in books

Strengthen the student's ability in searching the electronic resources using the keywords in search engines and internet encyclopedias

Affective

For searching the information resources, students act as a member of a group and help each other
Asking for help from teacher and librarian for searching and locating the information resources

Learning activities

In this stage, students of each group have time to find and access the selected resources and bring them into the classroom.
Then each group gives a report of the status of finding and accessing the resources to the teacher. If any student couldn't find his/her selected resources, he will replace another resources with consultation of the librarian and the teacher.
Teacher instructs students how to search the internet resources and students will search the internet resources to find the suitable information.
Also, students will be instructed how interview authorized people (like experts and other teachers) as an information source. The teacher will give them the interview forms to use them for interviewing people
At the end, students should locate the information in the founded resources. Each student must find 4 printed or electronic resources from the variety of information resources.

Assessment

At the end of the session, students must be able to define the ways of searching in the printed resources.
At the end of the session students must be able to explain about the ways of searching in the internet and electronic resources.
The teacher can assess learning level of the students by a quiz based on TRAILS-9 tool in the next session.

Forth skill (stage): Use of Information

Use of Information:	4.1 Engage (e.g., read, hear, view, touch)
	4.2 Extract relevant information

Grade: The 6th grade
Goal based on The Big6 model: Evaluating the credit and accuracy of the information resources and extracting the information by taking notes
Subject: Science
Lesson focus: Food chains and networks, ecosystem (natural environment)

General goals of the lesson according to the subject

This lesson aims to make students:

Understand the food chains and networks
Understand the plants role in treating the air
Explain simple relationships between various beasts
Understand the importance of the ecosystem and natural environment

The Big6 model objectives

Cognitive

To know how to evaluate the credit and accuracy of the information resources
To know how to take research notes from the resources by using the note taking and citation forms.

Behavioral

Strengthen student's ability to evaluate the information resources for doing the classroom research using a criteria to determine the credit and accuracy of the information.
Taking notes form the information resources by using the research and note taking forms.
Making a references list for their research report.

Affective

Doing the note taking process with cooperation with their friends in the group and help each other.

Learning activities

After finding the information resources by students, the teacher and librarian will teach them the ways of evaluating the credit and accuracy of the information resources content.
Then students of each group with helping each other will do the evaluating process. If the accuracy and credit of the founded information don't match the evaluation criteria, students will replace another resource.
After the evaluation process, students need to learn the note taking techniques. Teacher will explain the note taking process in the classroom and the students start the note taking from the resources by helping each other in the group.
Students have one week to complete the note taking forms according to their research questions. And in the next session they will report the completed notes in the classroom.

Assessment

At the end of the session, students must be able to explain about the ways of evaluating the content of information resources.

 At the end of the session students must be able to show how we can take research notes for the resources.

The teacher can assess the completed notes forms of the students and maintain the ability of each student in extracting the accurate information.

Fifth and sixth skills (stages): Synthesis and Evaluation

Synthesis:	**5.1 Organize from multiple sources**
	5.2 Present the information
Evaluation:	**6.1 Judge the product (effectiveness)**
	6.2 Judge the process (efficiency)

Grade: The 6th grade

Goal based on The Big6 model: synthesis and organize the notes according to the research questions order. Writing the classroom research report by providing the citations and references.

Self-evaluation of the whole research process

Subject: Science

Lesson focus: food chains and networks, ecosystem (natural environment)

General goals of the lesson according to the subject

This lesson aims to make students:

Understand the food chains and networks
Understand the plants role in treating the air
Explain simple relationships between various beasts
Understand the importance of the ecosystem and natural environment

The Big6 model objectives

Cognitive

To know how to organize and categorize the notes according to the parts of a classroom research paper and research questions order.
Knowing the ways of responsible use of information and how to cite a resources in the research paper.
To know how to write a research report.
To know how to make a references list
Be aware of metacognition and self-evaluation of the research process based on the Big6 model.

Behavioral

Strengthen student's ability to synthesis and combination of research notes according to the research questions order.
Students should be able to write a class research fluently and accurately.
Students should be able to provide a list of references and citations.
Students should be able to evaluate the whole research process that they done using and self-evaluation form in their work-book.

Affective

Students of each group help each other in writing the final classroom research report.
Students learn how to use the information legally and responsibly.

Learning activities

The teacher asks students to arrange the research notes according to their research questions.

Then he instructs them how to synthesis and write the research report.

Besides, the teacher explains about the in-text citations, copyright and plagiarism concepts and asks the students to follow these point in writing their research reports and also instructs them how to make a list of references.

Students have time to complete their work until the next session. They should write the research report without typos. In this stage students of each group read reports of their friends and can make correction for them.

At the end, students fill the self-evaluation form in order the effectiveness and the efficacy of their work and then deliver it to the teacher with the final research report.

Assessment

At the end of the session, students must be able to explain about the copyright and the way of using the information responsibly and ethically.

At the end of the session students must be able to show how we can provide a list of references for a research paper and how to make in-text citations.

At the end of the process, students should deliver their classroom research report to the teacher.

And finally they should be able to judge their report and the whole process of research that they did.

The teacher can assess students learning by rating their research reports or through a quiz.

Author

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Her research interests lie in the area of Information Literacy, information behavior, and Scientometrics.

She recently joined the University of Southern Queensland as a visiting academic and adjunct research fellow. She is collaborating in a research project on science education there with a focus on Super 3 model. Fatima really enjoys working with young children and is proud to share her research experience on the www.big6.com

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