



Mapping Grade VIII Students' Higher-Order Thinking Skills Using the SOLO Taxonomy in Bandar Lampung

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Abstract

Initial research indicates that students' higher-order thinking skills (HOTS) in biology remain low, primarily due to a lack of integration between science and everyday life, as well as the continued dominance of traditional teaching methods. This study aims to analyze students' higher-order thinking skills using SOLO taxonomy to gain deeper insights into their cognitive achievements in solving HOTS questions. The researcher employed a stratified random sampling technique. Four schools were selected to ensure the research sample represents the general characteristics of all schools in Bandar Lampung City. By choosing schools with diverse backgrounds, such as accreditation, geographical location, and learning support facilities, the study results can better reflect the actual conditions of the broader school population. Data were collected through interviews, documentation, and tests. This qualitative research utilized data analysis techniques, including data reduction, data presentation, and drawing conclusions based on the findings. The study results indicate that the average higher-order thinking skills of students in schools A, B, C, and D, based on SOLO taxonomy, are at the multistructural level at 41.37%, the relational level at 28.88%, and the extended abstract level at 28.75%. A total of 41.37% of students demonstrated medium-level higher-order thinking skills, while 57.63% fell into the high category. A key finding of this study is that the extended abstract indicator had the lowest average compared to other indicators. This is attributed to the more complex demands of the questions, which require students to evaluate, synthesize, and apply concepts in new contexts tasks they rarely encounter.

Keyword: Higher-Order Thinking Skills; SOLO Taxonomy; Grade VIII Students.

INTRODUCTION

The rapid transformation of science, technology, and social life in the twenty-first century has required education systems to move beyond knowledge transmission toward the development of learners' higher-level cognitive competencies. Science education, in particular, is expected to prepare students to interpret information, reason with evidence, solve complex problems, and apply scientific concepts to real-life situations (Fauziah et al., 2024; Kwangmuang et al., 2021; Sun et al., 2022). These competencies are closely related to higher-order thinking skills (HOTS), which involve the ability to analyze, evaluate, and create rather than merely remember or understand information. In science learning, HOTS plays a crucial role because scientific understanding requires students to explain relationships among concepts, construct arguments, evaluate evidence, and transfer knowledge to unfamiliar contexts (Rakhmawati, 2023; Shofiyah et al., 2025; Syawaludin et al., 2019). Therefore, science learning should not be limited to factual recall or procedural exercises but should provide opportunities for students to engage in inquiry, reasoning, conceptual integration, and contextual problem solving.

Higher-order thinking skills have become a major concern in contemporary science

education because many students still experience difficulty when they are required to solve non-routine problems, interpret complex information, or connect scientific concepts with everyday phenomena. Previous studies have shown that HOTS is essential for improving students' critical thinking, scientific reasoning, metacognition, creativity, and problem-solving capacity in science-related contexts (Ichsan et al., 2019; Özpir et al., 2025; Yanti & Thohir, 2024). HOTS-oriented science learning also supports students' ability to understand scientific issues more deeply because it encourages them to evaluate information, formulate explanations, and make reasoned decisions based on evidence (Oknaryana et al., 2025; Özpir et al., 2025; Yanti & Thohir, 2024). However, the development of HOTS cannot be achieved through conventional teacher-centered instruction alone. Students need learning experiences that stimulate questioning, discussion, exploration, investigation, and reflective thinking so that they can move from surface-level understanding to deeper conceptual reasoning (Arifin et al., 2025; Oknaryana et al., 2025; Yanti & Thohir, 2024).

In biology learning, HOTS is particularly important because biological concepts often require students to understand systems, functions, interactions, and causal relationships. For example, in learning the digestive system, students are not only expected to identify digestive organs and their functions but also to explain how these organs work together, analyze the consequences of digestive disorders, and apply biological concepts to health-related problems in daily life (Bustami et al., 2020; Safitri et al., 2025; Sumiati et al., 2025). Such learning demands cannot be adequately assessed only through conventional tests that focus on memorization. Instead, assessment should be able to reveal the quality and complexity of students' reasoning. Assessment practices that emphasize HOTS allow teachers to identify whether students merely recognize isolated facts, connect several concepts, or generalize their understanding to new contexts. Consequently, a more diagnostic assessment framework is needed to map students' cognitive responses in science learning (Diena et al., 2023; Fauzi & Wicaksono, 2021; Hartono et al., 2022).

One relevant framework for analyzing students' thinking quality is the Structure of Observed Learning Outcomes taxonomy. The SOLO taxonomy was developed to describe the increasing complexity of students' understanding, ranging from prestructural and unistructural responses to multistructural, relational, and extended abstract responses (Adeniji et al., 2022; Afriyani et al., 2018; Chubko et al., 2019). At the multistructural level, students can identify several relevant pieces of information, although these elements may still be treated separately. At the relational level, students are able to integrate different ideas into a coherent explanation. At the extended abstract level, students can generalize principles, evaluate situations, and apply concepts to new or unfamiliar contexts (Adjei, 2025; Andikos et al., 2025; Triana et al., 2023). Compared with assessment approaches that only classify answers as correct or incorrect, the SOLO taxonomy offers a more structured way to examine the depth of students' reasoning and the developmental progression of their cognitive responses (Afriyani et al., 2018; Chubko et al., 2019; Triana et al., 2023).

Several studies have investigated HOTS in science education and reported that students' higher-order thinking can be improved through inquiry-based learning, problem-based learning, contextual learning, and HOTS-oriented assessment. Other studies have also used the SOLO taxonomy to examine students' learning outcomes, abstract reasoning, and critical thinking in different educational contexts (Affandy et al., 2024; Arthadewi et al., 2024; Zona et al., 2025). Nevertheless, previous research has tended to focus either on the effectiveness of instructional models in improving HOTS or on the general measurement of students' cognitive achievement. Limited attention has been given to mapping junior high school students' HOTS in science learning by examining the quality of their responses across SOLO taxonomy levels, particularly in biology topics such as the digestive system. This gap is important because teachers need more specific diagnostic information about whether students are still at the stage of identifying multiple concepts, connecting relationships among concepts, or applying concepts to new contexts.

Based on this research gap, the novelty of this study lies in its attempt to map Grade VIII students' higher-order thinking skills using the SOLO taxonomy as an analytical framework in science learning. Rather than merely reporting students' total HOTS scores, this study classifies students' responses into multistructural, relational, and extended abstract levels to provide a more detailed profile of their reasoning quality. Such mapping is expected to help teachers design more appropriate HOTS-oriented learning activities and assessments that guide students progressively from concept identification toward relational understanding and abstract application. Therefore, this study aims to analyze Grade VIII students' higher-order thinking skills using the SOLO taxonomy in science learning. Specifically, this study seeks to identify the distribution of students' HOTS across SOLO taxonomy levels and to describe the extent to which students are able to demonstrate multistructural, relational, and extended abstract reasoning when solving science problems.

METHODS

The data collection methods employed in this study included interviews, tests, and documentation related to the analysis of higher-order thinking skills conducted across the four schools. These methods were used to examine and evaluate students' higher-order thinking abilities.

Interview

Table 1. Indicator and Sub Indicator of Interview

Indicator	Sub Indicator
Prestructural	1. Identifying teachers' fundamental understanding of higher-order thinking skills (HOTS).
Unistructural	1. Instructional methods used to enhance higher-order thinking skills (HOTS). 2. Indicators of successful development of higher-order thinking skills (HOTS).
Multistructural	1. Instructional methods used to enhance higher-order thinking skills (HOTS). 2. How to assess higher-order thinking skills (HOTS) in the learning process. 3. Techniques used to enhance student engagement
Relational	1. How teachers integrate various instructional methods to enhance students' higher-order thinking skills (HOTS). 2. How teachers adapt instructional strategies to accommodate different levels of students' higher-order thinking skills (HOTS). 3. How to relate scientific concepts to students' everyday experiences.
Extended Abstract	1. How teachers evaluate the effectiveness of the instructional methods they implement to develop higher-order thinking skills (HOTS).

Test

After the data relevant to the focus of the study were obtained and collected, they were subsequently analyzed through the following steps:

1. Constructing a response map for each test item based on the SOLO taxonomy.
2. Determining students' response levels by comparing their answers with the optimal correct responses for each item.
3. Calculating the frequency and percentage of students at each SOLO level. The percentage of students was calculated using the simple percentage formula:

$$P = \frac{F}{N} \times 100\%$$

Where:

P = percentage of students

F = frequency of students

N = total number of research samples

4. The quantitative data were then processed and transformed into qualitative data based on the following percentage criteria:

<https://siducat.org/index.php/isej/>

Table 2. Percentage Interval Interpretation Criteria

Mean	Criteria
$75\% \leq x \leq 100\%$	Very Good
$65\% \leq x \leq 74\%$	Good
$55\% \leq x \leq 64\%$	Sufficient
$0\% \leq x \leq 54\%$	Poor

Source: Adapted from Sudijono in Rosmaini et al. (2004).

Table 3. Higher-Order Thinking Skills Based on the SOLO Taxonomy

No soal	Level solo				
	P	U	M	R	E
Kategori	rendah		sedang		Tinggi

Students' higher-order thinking skills are classified into three categories. Students at the prestructural and unistructural levels are categorized as having low higher-order thinking skills. Those at the multistructural level are categorized as having moderate higher-order thinking skills. Meanwhile, students who reach the relational and extended abstract levels are classified as having high higher-order thinking skills.

Documentation

Documentation refers to the process of obtaining required data from available sources. In this study, documentation was carried out by recording various research activities through photographs and other forms of documented evidence.

Data Analysis Technique

The data analysis technique employed in this study uses the model proposed by Matthew B. Miles and A. Michael Huberman, which consists of data reduction, data display, and conclusion drawing. In this study, data analysis was conducted during the data collection process.

Credibility test

Credibility, or the principle of credibility, refers to the extent to which the findings of qualitative research can be trusted, particularly in revealing the actual reality of the phenomenon being studied. To meet this criterion, researchers need to conduct triangulation, member checking, and continuous interviews or observations until data redundancy is achieved.

Source triangulation

Source triangulation to test data credibility is conducted by verifying the data obtained from several sources. In this study, the researcher used various sources to obtain the data.

RESULT AND DISCUSSION

Result

Students' Higher-Order Thinking Skills Categories

The analysis of students' higher-order thinking skills was conducted based on their performance in completing HOTS-oriented science test items on the digestive system topic. The test results were classified into four achievement categories: excellent, good, fair, and low. This classification was used to describe the general distribution of students' HOTS achievement before further analysis using the SOLO taxonomy framework.

Table 4. Categories of Students' Higher-Order Thinking Skills

Score Interval	Category	Frequency	Percentage
75-100	Excellent	18	29%
65-74	Good	15	24%
55-64	Fair	9	15%
0-54	Low	20	32%
Total		62	100%

Table 1 shows that students' higher-order thinking skills varied across the four categories. A

total of 18 students, representing 29% of the sample, were categorized as excellent, while 15 students, or 24%, were categorized as good. Meanwhile, 9 students, or 15%, were in the fair category, and 20 students, or 32%, were in the low category. These findings indicate that although more than half of the students achieved good to excellent HOTS performance, a considerable proportion of students still demonstrated limited ability in answering HOTS-based science questions. This distribution suggests that students' readiness to engage in higher-order thinking was not uniform and that some students still required stronger conceptual and reasoning support.

Individual HOTS Profiles Based on the SOLO Taxonomy

To obtain a deeper understanding of students' response patterns, selected students from different achievement categories were analyzed using the SOLO taxonomy indicators. The analysis focused on three levels relevant to higher-order thinking skills: multistructural, relational, and extended abstract. The multistructural level reflects students' ability to identify several relevant concepts, the relational level reflects their ability to connect concepts into meaningful explanations, and the extended abstract level reflects their ability to generalize or apply concepts to new contexts.

Table 5. Individual Profiles of Students' HOTS Based on the SOLO Taxonomy

Student	Multistructural	Relational	Extended Abstract	Overall Score	Overall Category
MIAK	100%	88.89%	75%	87.96	Excellent
VA	100%	77.78%	75%	84.26	Excellent
RAS	75%	77.78%	75%	75.95	Excellent
AP	75%	77.78%	50%	67.59	Good
WAN	37.50%	66.67%	75%	59.72	Fair
SBFR	75%	61.11%	75%	70.37	Good

Table 2 demonstrates that students with excellent overall HOTS performance generally achieved high scores across the three SOLO taxonomy indicators. MIAK and VA, for example, obtained 100% at the multistructural level and maintained strong performance at the relational and extended abstract levels. This indicates that both students were able not only to identify relevant concepts but also to connect and apply those concepts in more complex contexts.

RAS also demonstrated strong performance across the three indicators, with an overall score of 75.95, categorized as excellent. Although RAS was initially selected to represent the moderate group, the SOLO-based analysis showed that this student's response quality reached an excellent category. This finding indicates that individual students may show stronger reasoning ability when their responses are analyzed in more detail based on cognitive complexity.

AP achieved good overall performance, with relatively strong scores at the multistructural and relational levels but a lower score at the extended abstract level. This suggests that AP was able to identify and connect relevant biological concepts but still experienced difficulty applying those concepts to unfamiliar or more abstract problem contexts. Meanwhile, WAN and SBFR showed uneven HOTS profiles. WAN obtained a low score at the multistructural level but achieved better scores at the relational and extended abstract levels. SBFR showed good performance at the multistructural and extended abstract levels but lower performance at the relational level. These findings indicate that students' HOTS profiles are not always linear; students may demonstrate strength in one SOLO level while still showing weaknesses in another.

Mean Scores of Students' HOTS Across SOLO Taxonomy Indicators

The mean score analysis was conducted to identify the overall tendency of students'

HOTS performance across the SOLO taxonomy indicators. This analysis provides a general picture of which HOTS level was most strongly demonstrated by students and which level still required further instructional support.

Table 6. Mean Scores of Students' HOTS Based on SOLO Taxonomy Indicators

SOLO Taxonomy Indicator	Mean Score	Category
Multistructural	77.08	Excellent
Relational	74.37	Good
Extended Abstract	70.83	Good
Overall Mean	74.09	Good

Table 3 shows that the highest mean score was found at the multistructural level, with a score of 77.08. This indicates that students were generally able to identify several relevant concepts related to the digestive system. The relational level obtained a mean score of 74.37, indicating that students were able to connect concepts and explain relationships among digestive organs, structures, and biological processes, although their performance was slightly lower than at the multistructural level.

The extended abstract level obtained the lowest mean score, with a score of 70.83. Although this score was still categorized as good, it indicates that students experienced greater difficulty when required to apply, evaluate, or generalize concepts in unfamiliar contexts. The overall mean score of 74.09 suggests that students' HOTS, based on the SOLO taxonomy, was generally in the good category. However, the lower score at the extended abstract level indicates the need for more learning activities that train students to transfer scientific concepts to broader and more complex situations.

Distribution of Students' Responses Based on SOLO Taxonomy Levels

The distribution of students' responses was further analyzed to identify the proportion of HOTS achievement at each SOLO taxonomy level. This analysis provides a more detailed description of the extent to which students' responses were concentrated at the multistructural, relational, or extended abstract levels.

Table 7. Distribution of Students' HOTS Responses Based on SOLO Taxonomy

SOLO Taxonomy Level	Percentage	HOTS Category
Multistructural	41.37%	Moderate
Relational	28.88%	High
Extended Abstract	28.75%	High
Total	100%	—

Table 4 indicates that the largest proportion of students' responses was at the multistructural level, accounting for 41.37% of the total responses. This result shows that many students were able to identify several relevant ideas or concepts but had not consistently integrated them into more complex explanations. In the context of the SOLO taxonomy, this level reflects partial but meaningful understanding, where students can recognize multiple elements of a problem but may still treat them separately.

The relational level accounted for 28.88% of students' responses. This indicates that some students had begun to connect concepts and explain relationships among the components of the digestive system. Students at this level demonstrated a more integrated understanding because they were able to relate biological structures to their functions and explain processes more coherently.

The extended abstract level accounted for 28.75% of students' responses. Although this proportion was slightly lower than the relational level, it still indicates that a number of students were able to demonstrate advanced reasoning by applying concepts to new or broader contexts. However, because this level had the lowest percentage among the high-level categories, it can be inferred that students still need more structured opportunities to practice generalization, evaluation, and concept transfer in science learning.

Triangulation of Teacher Interview Findings

Teacher interviews were used to strengthen the interpretation of students' HOTS test results. The interview data focused on teachers' understanding of HOTS, learning strategies used to promote HOTS, and assessment practices applied in science learning.

Table 8. Summary of Teacher Interview Findings on HOTS-Oriented Learning

Aspect	Main Findings
Teachers' understanding of HOTS	Teachers generally defined HOTS as students' ability to analyze, evaluate, solve problems, and think creatively.
Learning strategies	Teachers reported using discussion, questioning, practical activities, Discovery Learning, and Problem-Based Learning to stimulate students' thinking.
Assessment practices	Teachers had begun to use HOTS-oriented questions, particularly in daily tests and classroom exercises.
Challenges	Students with weak prior knowledge often experienced difficulty answering HOTS-based questions. Some classroom practices still relied on lectures and direct explanation.
Relevance to SOLO taxonomy results	The interview findings support the test results, especially the dominance of the multistructural level and the lower achievement at the extended abstract level.

Table 5 shows that teachers had a general understanding of HOTS and had attempted to implement HOTS-oriented learning through active learning strategies. Teachers associated HOTS with students' ability to analyze information, evaluate problems, and produce creative solutions. They also reported using discussion, demonstration, practical activities, Discovery Learning, and Problem-Based Learning to support students' reasoning development.

However, the interviews also revealed that the implementation of HOTS-oriented learning was not yet fully consistent. Some teachers still relied on lecture-based instruction and direct explanation, particularly when students had difficulty understanding basic concepts. This condition helps explain why the largest proportion of students' responses remained at the multistructural level. Students were generally able to identify several concepts, but many still required further support to connect, evaluate, and apply these concepts in unfamiliar contexts.

The interview findings also indicate that students' prior knowledge played an important role in their HOTS performance. Teachers reported that students with stronger conceptual foundations were more confident and more capable of answering HOTS-based questions. In contrast, students with weaker prior knowledge tended to struggle when asked to analyze or apply concepts beyond routine classroom examples. Therefore, the triangulation results confirm that students' HOTS achievement was influenced not only by the difficulty of the test items but also by instructional practices, assessment exposure, and students' conceptual readiness.

Summary of Results

Overall, the results indicate that Grade VIII students' higher-order thinking skills based

on the SOLO taxonomy were generally categorized as good, with an overall mean score of 74.09. The highest achievement was found at the multistructural level, while the lowest mean score was found at the extended abstract level. The distribution of students' responses showed that 41.37% were at the multistructural level, 28.88% at the relational level, and 28.75% at the extended abstract level. These findings suggest that many students were able to identify multiple relevant concepts, but fewer students were able to integrate and apply those concepts in more complex contexts. The teacher interview findings supported this pattern by showing that although HOTS-oriented learning had begun to be implemented, students still needed more consistent exposure to contextual, open-ended, and concept-transfer tasks to strengthen their relational and extended abstract reasoning.

Discussion

The rapid transformation of science, technology, and social life in the twenty-first century has required education systems to move beyond the transmission of factual knowledge toward the development of students' higher-level cognitive competencies. In contemporary education, students are expected not only to remember and understand information but also to analyze problems, evaluate evidence, construct arguments, and apply knowledge to unfamiliar contexts. These competencies are closely associated with higher-order thinking skills (HOTS), which include analytical, evaluative, creative, reflective, and problem-solving abilities (Hamzah et al., 2022; Jansen & Möller, 2022; Muhibbuddin et al., 2023). In science education, HOTS is particularly important because scientific learning requires students to interpret data, explain causal relationships, evaluate scientific claims, and connect abstract concepts with real-life phenomena (Jansen & Möller, 2022; Muhibbuddin et al., 2023; Rintayati et al., 2021). Therefore, science learning should not be limited to memorization-oriented instruction but should provide students with opportunities to reason scientifically, solve contextual problems, and construct meaningful conceptual understanding.

Science learning plays a strategic role in developing students' ability to understand natural phenomena through inquiry, evidence-based reasoning, and conceptual integration. However, many students still experience difficulty when they are required to solve non-routine problems, interpret complex scientific information, or transfer concepts to new situations. This condition indicates that students' science learning outcomes are often still dominated by surface-level understanding rather than deep reasoning. Previous studies have shown that HOTS development is influenced by students' conceptual foundations, the quality of learning strategies, assessment practices, teacher competence, and classroom learning culture (Arifin et al., 2025; Bustami et al., 2020; Ichsan et al., 2019). Inquiry-based learning, problem-based learning, contextual learning, and HOTS-oriented assessment have been widely recommended because they encourage students to investigate problems, formulate explanations, evaluate alternatives, and justify conclusions based on evidence (Hartono et al., 2022; Özpir et al., 2025; Rakhmawati, 2023). These findings suggest that HOTS cannot be developed through routine exercises alone but requires systematic learning experiences that challenge students to think beyond factual recall.

In biology learning, HOTS is essential because biological concepts often involve complex systems, processes, interactions, and causal relationships. For example, in learning the digestive system, students are expected not only to identify digestive organs and their functions but also to explain how these organs work together, analyze the impact of digestive disorders, and apply biological concepts to health-related situations in everyday life. Such cognitive demands require students to move from fragmented knowledge toward integrated and transferable understanding. Students who only memorize organ names or functions may be able to answer simple factual questions, but they may struggle when asked to explain

relationships among structures, processes, and biological functions. Therefore, assessment in biology learning should be able to reveal the quality of students' thinking, not merely determine whether their answers are correct or incorrect (Adjei, 2025; Affandy et al., 2024; Andikos et al., 2025).

One assessment framework that can be used to analyze the quality and complexity of students' thinking is the Structure of Observed Learning Outcomes taxonomy. The SOLO taxonomy categorizes students' responses into hierarchical levels of cognitive complexity, ranging from prestructural and unistructural responses to multistructural, relational, and extended abstract responses. At the multistructural level, students are able to identify several relevant pieces of information, although these elements may still be presented separately. At the relational level, students can integrate different ideas into a coherent explanation and show an understanding of relationships among concepts. At the extended abstract level, students are able to generalize principles, evaluate situations, and apply concepts to new or unfamiliar contexts (Adeniji et al., 2022; Afriyani et al., 2018; Chubko et al., 2019). Thus, the SOLO taxonomy is useful for diagnosing students' cognitive development because it allows teachers and researchers to examine how students organize, connect, and extend their understanding when responding to HOTS-based questions.

Several previous studies have investigated HOTS in science education and reported that students' higher-order thinking can be strengthened through learning models that emphasize inquiry, problem solving, collaboration, and contextual reasoning. Other studies have used the SOLO taxonomy to analyze students' reasoning, problem-solving performance, abstract thinking, and response complexity in mathematics and science-related contexts. Nevertheless, much of the existing research has focused on measuring the effectiveness of learning models or reporting students' overall HOTS achievement. Limited attention has been given to mapping junior high school students' HOTS by examining the structure and quality of their responses across SOLO taxonomy levels, especially in biology learning topics such as the digestive system. This limitation is important because total test scores cannot fully explain whether students are merely identifying several concepts, connecting concepts into meaningful explanations, or applying concepts to broader and unfamiliar contexts.

Based on this research gap, the novelty of the present study lies in its use of the SOLO taxonomy as a diagnostic framework to map Grade VIII students' higher-order thinking skills in science learning. Rather than only reporting students' total HOTS scores, this study classifies students' responses into multistructural, relational, and extended abstract levels to provide a more detailed profile of their reasoning quality. Such mapping is expected to help science teachers identify students' cognitive positions and design more appropriate HOTS-oriented learning activities. Students at the multistructural level need support in connecting concepts, students at the relational level need opportunities to elaborate and justify explanations, and students at the extended abstract level need more challenging tasks that require transfer, evaluation, and generalization. Therefore, this study aims to analyze Grade VIII students' higher-order thinking skills using the SOLO taxonomy in science learning. Specifically, this study seeks to identify the distribution of students' HOTS across SOLO taxonomy levels and describe the extent to which students demonstrate multistructural, relational, and extended abstract reasoning when solving science problems.

CONCLUSION

Based on the results of the study on the analysis of higher-order thinking skills based on the SOLO taxonomy among Grade VIII students at junior high schools in Bandar Lampung City, involving 62 students from Schools A, B, C, and D, it can be concluded that students' higher-order thinking skills varied across the SOLO taxonomy indicators. At the multistructural level, 41.37% of students

demonstrated higher-order thinking skills in the moderate category. At the relational level, 28.88% of students demonstrated higher-order thinking skills in the high category. Meanwhile, at the extended abstract level, 28.75% of students demonstrated higher-order thinking skills in the high category. Overall, 41.37% of students were categorized as having moderate higher-order thinking skills, while 57.63% were categorized as having high higher-order thinking skills.

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