IJIS Edu : Indonesian J. Integr. Sci. Education, 7 (1) 2025

Volume 7 Issue 1 , Januari 2025
P-ISSN: **2655-2388**, E-ISSN: **2655-2450**

Profile of Science Literacy Competence of Junior High School Students in Ecology and Biodiversity in Indonesia

Syahida Ainaya[1], Winny Liliawaty [2], Lilit Rusyati[3]

[1,3] *Pendidian ilmu pengetahuan Alam, Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam, Universitas Pendidikan Indonesia, Indonesia*
[2] *Pendidian fisika, Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam, Universitas Pendidikan Indonesia, Indonesia*
Corresponding E-mail: syahida.ainaya@upi.edu

Abstract: The importance of science literacy skills prompted this study to analyze the profile of science literacy competence of junior high school students in biodiversity in Indonesia. OECD defines science literacy as the ability to identify questions, acquire new knowledge, explain scientific phenomena, and draw conclusions based on facts. This research uses a quantitative approach involving 200 students from SMP Negeri 1 Pagaden Subang and SMPN 2 Pagaden Subang. The E-Test consisted of 25 questions distributed via WhatsApp Group by natural science subject teachers. Data were processed using Microsoft Excel and grouped based on the difficulty level of the questions (low, medium, high). The results show that junior high school students' science literacy skills are still in the low category. In explaining scientific phenomena competence, the percentage of correct answers for low and medium difficulty questions reached 66% and 67%, respectively, while for high difficulty questions it was only 55%. In evaluating and designing scientific investigations competence, questions with low difficulty levels had the highest percentage of correct answers (68%), followed by medium (56%) and high difficulty levels (43%). In interpreting scientific data and evidence competence, questions with low difficulty levels reached 78%, medium 69%, and high 58%. These findings are consistent with previous studies showing the low science literacy of students in various regions of Indonesia. Therefore, more intensive and sustainable efforts are needed to improve students' science literacy through more effective and interactive learning methods and teacher training. The results of this study are expected to serve as a reference for policymakers in formulating more appropriate education strategies to improve students' science literacy competence in Indonesia.

Keywords: Science Literacy, Competence Profile, Junior High School Students

How to cite this article :

Ainaya, S., Liliawati, W., & Rusyati, L. (2025). Profile of Science Literacy Competence of Junior High School Students in Ecology and Biodiversity in Indonesia. *IJIS Edu : Indonesian Journal of Integrated Science Education, 7*(1). doi:http://dx.doi.org/10.29300/ijisedu.v7i1.4274

1. Introduction

The importance of scientific literacy skills drives developed countries to continually enhance the scientific literacy capabilities of their young generations to compete in the global workforce (Arsad, 2023). The OECD defines scientific literacy as the ability to identify questions, acquire new knowledge, explain scientific phenomena, and draw conclusions based on facts. Scientific literacy also includes understanding scientific characteristics, being aware of the influence of science and technology in shaping nature, intellectual environments, and culture, as well as the ability to engage with and care about science-related issues (OECD, 2018). One way to measure students' scientific literacy is through the Programme for International Student Assessment (PISA), an international study by the OECD that measures basic literacy among 15-year-old students, including reading, mathematics, and science. PISA also provides additional data such as demographics, habits, perceptions, and aspirations. Indonesia has participated in seven rounds of PISA since 2000, with PISA 2018 involving 399 schools and 12,098 students representing 3.7 million 15-year-old students from grades 7-12 (Nur'aini, Ulumuddin, Sari, & Fujianita, 2021). In PISA 2018, Indonesia ranked in the bottom 10 out of 79 countries, with reading scores 80 points below the OECD average, and lagging 42 points in reading, 52 points in mathematics, and 37 points in science compared to ASEAN countries (Nur'aini, Ulumuddin, Sari, & Fujianita, 2021)

According to PISA, scientific literacy consists of four interrelated aspects: 1) context, which involves recognizing life situations that involve science; 2) knowledge, which focuses on understanding nature based on scientific knowledge; 3) competence, which includes scientific abilities such as identifying problems, explaining scientific phenomena, and drawing conclusions based on evidence; and 4) attitude, which encompasses interest in science, participation in scientific investigations, and motivation to act responsibly toward natural resources and the environment (OECD, 2018).

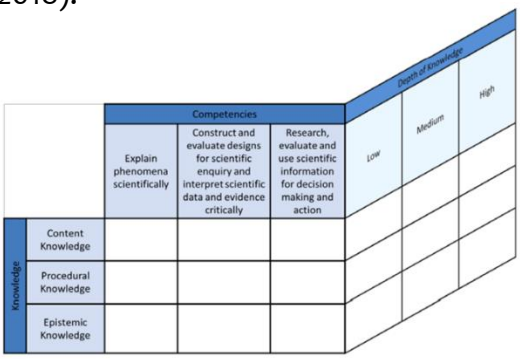

Figure 1 Science Literacy Ability Competencies (OECD, 2018)

Figure 1, which explains this competency, outlines three aspects of knowledge: content knowledge, procedural knowledge, and epistemic knowledge, at three different levels: low, medium, and high. Firstly, in the competency "Explaining Phenomena Scientifically," low content knowledge reflects a basic understanding of the phenomenon, while a high level indicates a deep comprehension of complex aspects. High procedural knowledge in this context includes the ability to design advanced experiments.

Previous studies on science literacy competencies highlight various aspects that are critical to improving students' understanding of scientific concepts and processes, particularly in the context of ecology and biodiversity in Indonesia. Research has underscored the need for effective assessment tools to evaluate science literacy comprehensively. For instance, a multi-representation assessment instrument for high school physics revealed that many students are still categorized as having unsatisfactory science literacy skills, pointing to the need for more robust evaluation methods (Ellianawati, Meilanie, & Subali, 2021). Additionally, the shift to distance learning during the COVID-19 pandemic positively impacted students' scientific literacy, particularly when using platforms like Moodle, which incorporated local coastal wisdom into learning, with results indicating moderate competency levels across various indicators (Shofatun, Agustini, & Rahayu, 2021). However, a contextual proficiency analysis of junior high school students showed that only a small percentage achieved high levels of scientific literacy, emphasizing the importance of targeted educational strategies to enhance these competencies (Nasor, Lutfi, & Prahani, 2023).

Moreover, studies examining specific topics such as sound waves found that students often struggle with competencies such as interpreting data scientifically and evaluating scientific investigations, highlighting the need for interventions tailored to improve these areas (Indasa & Jauhariyah, 2024). In health sciences, assessments of digital health literacy competencies revealed that while many students possess advanced digital skills, there are significant gaps in their ability to critically evaluate health-related information (Haikal et al., 2023). Collectively, these findings demonstrate the pressing need to develop educational strategies and assessment tools that address diverse learning contexts and improve the critical thinking skills necessary for scientific literacy. This is particularly relevant for topics like ecology and biodiversity, where understanding and applying scientific knowledge is essential for addressing real-world environmental challenges.

Other research on the science literacy profiles of middle school students in the subjects of ecology and biodiversity in Indonesia has revealed several important findings. Researchers found that students have varying competencies in science

Online ISSN 2655-2450 | Print ISSN 2655-2388

literacy, as evidenced by the results of the computer-based national exams (UNBK) in biology. For instance, the highest scores were found in the sub-topics of biodiversity and ecology, with an average of 68.65, while the lowest scores were in the sub-topics of biomolecular and biotechnology, with an average of 45.37. This indicates that more concrete topics, such as biodiversity, are easier for students to understand compared to more abstract topics, such as biomolecular and biotechnology (Maesaroh., Mega, Irdalisa, Astuti, & Lestari, 2021).

Research has demonstrated that integrating local culture into science education can effectively enhance students' science literacy. For instance, Mujahidin, Rahman, Wilujeng, and Nugroho (2023) utilized the Dhadak Merak Reyog Ponorogo dance as the basis for a learning approach, which resulted in a significant increase in students' science literacy, with the posttest average score of 57.47 exceeding the pretest score of 44.12. Similarly, Merta, Artayasa, Kusmiyati, Lestari, and Setiadi (2020) implemented a guided discovery learning model to improve middle school students' science literacy. While the study revealed that most students achieved a moderate level of science literacy (48.2%), a substantial portion remained in the low and very low categories (48.2%). However, there are notable gaps in these studies that warrant further exploration. The first study highlights the benefits of integrating local cultural contexts but does not compare its effectiveness to more general pedagogical models like guided discovery learning(Mujahidin, Rahman, Wilujeng, & Nugroho, 2023). On the other hand, the second study demonstrates the broader applicability of guided discovery but fails to address the cultural relevance that might engage students more deeply(Merta, Artayasa, Kusmiyati, Lestari, & Setiadi, 2020). Additionally, nearly half of the students in the guided discovery model still exhibited low literacy levels, indicating potential challenges in implementation or mismatched instructional approaches (Merta et al., 2020). Moreover, the generalizability of culturally integrated methods, such as the Dhadak Merak Reyog Ponorogo dance, to other cultural contexts remains unexplored (Mujahidin et al., 2023). These gaps suggest the need for future research to examine the synergy between culturally relevant approaches and structured pedagogical models, such as guided discovery learning, to create a more comprehensive and effective strategy for improving science literacy across diverse educational and cultural settings.

This study aims to analyze the science literacy competency profiles of middle school students in the subject of biodiversity in Indonesia. The research addresses three main aspects: explaining scientific phenomena, evaluating and designing scientific investigations, and interpreting data and scientific evidence.

2. Method

This research employs a quantitative approach because it focuses on the collection and analysis of numerical data to depict the science literacy profiles of middle school students in Indonesia regarding ecology and biodiversity. The rationale for choosing a quantitative approach is to provide a clear and measurable depiction of students' science literacy abilities based on objectively measurable data (Creswell, 2012). This study aims to offer more precise and detailed information about the science literacy profiles of middle school students within the researched context. The research was conducted at SMP Negeri 1 Pagaden Subang and SMPN 2 Pagaden Subang in Subang Regency.

The research sample consists of 7th and 8th-grade students who have studied ecology and biodiversity materials in Indonesia and have undergone learning using the Merdeka Curriculum. A total of 200 students were selected through a screening process to participate in the entire test. The E-Test questions were distributed by natural science subject teachers via the Class WhatsApp Group (WAG) on April 5, 2024. Purposive sampling technique was employed (Creswell, 2012), allowing the researcher to select precise samples based on specific criteria aligned with the research objectives, namely, 8th-grade students learning with the Merdeka Curriculum.

E-Media Nearpod application is utilized to distribute 25 questions, assessing students' critical thinking abilities across various subjects, including analysis, synthesis, and evaluation of information (Susanto, 2021). After data collection, student data processed using Microsoft Excel is categorized based on science competency concepts and question difficulty levels (low, medium, high). Each question type is represented on separate worksheets, where the percentage of students answering correctly is calculated for each difficulty level within each concept. This analysis outcome will provide a clear overview of middle school students' scientific literacy profiles in ecology and biodiversity, enabling the identification of trends and patterns in students' abilities based on question difficulty levels.

3. Result and Discussion

The profile of scientific literacy competence in explaining phenomena scientifically indicates that the scientific literacy skills of junior high school students are still in the low category. The profile of Scientific Literacy Competence in explaining phenomena scientifically in biodiversity material in Indonesia is an essential element in science education. This competence encompasses students'

Online ISSN 2655-2450 | Print ISSN 2655-2388

abilities to connect theoretical concepts with real observations and to explain various biological phenomena based on strong scientific foundations. In the context of biodiversity, students are invited to understand and explain various aspects such as species adaptation, ecosystem interactions, and the impact of environmental changes on biodiversity. Through mastering this competence, it is hoped that students can develop a more holistic understanding of Indonesian biodiversity while enhancing their critical and analytical thinking skills to support conservation efforts and sustainable utilization of natural resources.

The results of this research, which tested 25 questions on 200 students, obtained the following outcomes regarding the profile of Scientific Literacy Competence in Explaining Phenomena Scientifically Among Students in Biodiversity Material in Indonesia:

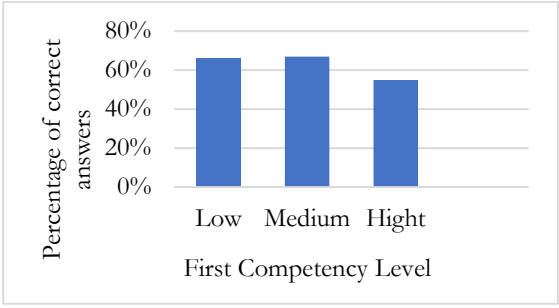

Figure 2 Percentage of Scientific Literacy Level First Competency Students

Figure 2 depicts the percentage of correct answers from students on the first competency in scientific literacy, which relates to the ability to explain phenomena scientifically in the biodiversity material in Indonesia. The data on the graph indicates that questions with low and medium competency levels have higher percentages of correct answers, approximately 66% and 67% respectively, with 200 students able to answer correctly. Conversely, questions with a high competency level show a lower percentage of correct answers, around 55%.

This indicates that more students are able to answer questions with low and medium competencies in explaining scientific phenomena on the topic of biodiversity compared to questions with high competency. This finding aligns with a study conducted in 2020, which also found that the profile of scientific literacy competence among junior high school students in Tegal City was in the very low category, with an overall score of (40.62+0.97)% and a score in the competency of explaining scientific phenomena of (45.77+1.09)% (Afina, Hayati, & Fatkhurrohman, 2021). Another study conducted in 2018 also found that students' science competencies in science literacy learning with a scientific inquiry approach excelled the most in the aspect of

explaining scientific phenomena, with an average percentage reaching 81% (Basam, Rusilowati, & Ridlo, 2018).

The competency profile of science literacy in evaluating and designing scientific investigations for students on biodiversity in Indonesia is crucial. The ability to evaluate and design scientific investigations is an essential component of scientific literacy skills that enable individuals to comprehend and apply scientific knowledge in everyday life (Irwan, 2020). This competency involves students' ability to assess the validity of research, identify variables, and design systematic and accurate experiments related to biodiversity in their environment. Considering Indonesia's exceptionally high biodiversity, it is important for students not only to grasp the theory but also to possess practical skills in conducting scientific research.

The Competency Profile of Science Literacy in Evaluating and Designing Scientific Investigations for Students in the Subject of Biodiversity in Indonesia is as follows:

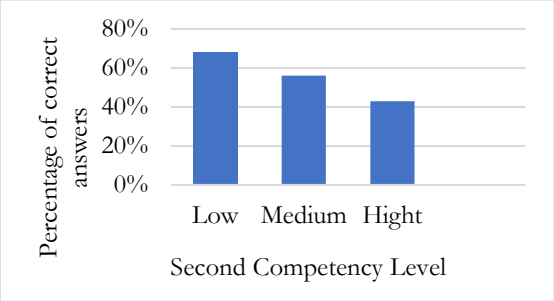

Figure 3 Presentation of Second Competency Students' Science Literacy Level

Figure 3 illustrates the percentage of correct student responses in the second competency of science literacy, which pertains to the ability to evaluate and design scientific investigations on biodiversity in Indonesia. The data in the graph indicate that questions with low competency levels have the highest percentage of correct answers, with approximately 68% of 200 students able to answer correctly. Questions with moderate competency levels have a correct answer percentage of 56%, while questions with high competency levels have the lowest percentage of correct answers, at only around 43%.

This indicates that more students are able to answer questions with low and moderate competencies in evaluating and designing scientific investigations on the topic of biodiversity compared to questions with high competencies. Findings with not significantly different results in this study suggest that the science literacy profile of students in the competency domain of evaluating and designing scientific research achieves a score of (50.62%) (Artat, 2014). In another study, similar results were obtained, indicating that the science literacy competency profile of students in State Junior High Schools in Tegal City is classified as very low, with an overall score of

Online ISSN 2655-2450 | Print ISSN 2655-2388

(40.62±0.97)%. In terms of competency in evaluating and designing scientific investigations, the average score reaches (27.50±1.36)% (Afina et al., 2021).

The competency profile of science literacy in interpreting data and scientific evidence among students regarding biodiversity in Indonesia is a crucial aspect of science education. Science literacy skills are highly important for students to understand emerging environmental, economic, and social issues (Dewi & Putra, 2022). This competency encompasses students' abilities to gather, analyze, and interpret data related to species diversity, ecosystems, and the genetics of Indonesian flora and fauna. Through a deep understanding of scientific evidence, students are not only introduced to the biodiversity in their surroundings but also trained to think critically and make decisions based on valid data.

The Competency Profile of Science Literacy in Interpreting Data and Scientific Evidence among Students in Biodiversity in Indonesia yields the following results:

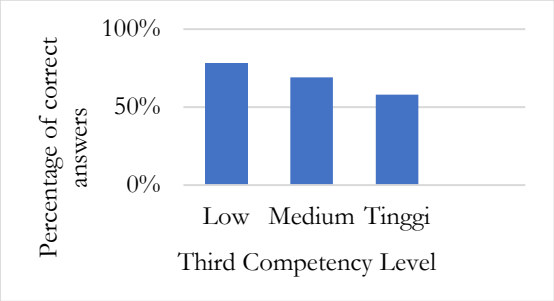

Figure 4 Presentation of Second Competency Students' Science Literacy Level

Figure 4 illustrates the percentage of correct student responses in the third competency of science literacy, which pertains to the ability to interpret data and scientific evidence on biodiversity in Indonesia. The data in the graph indicate that questions with low competency levels have the highest percentage of correct answers, with approximately 78% of 200 students able to answer correctly. Questions with moderate competency levels have a correct answer percentage of 69%, while questions with high competency levels have the lowest percentage of correct answers, at only around 58%. This indicates that more students are able to answer questions with low and moderate competencies in interpreting data and scientific evidence on the topic of biodiversity compared to questions with high competencies.

The research findings indicate that the science literacy skills of students in the topic of organism interactions and ecosystems at State Junior High School 43 Rejang Lebong are categorized as low. In the aspect of "interpreting data and scientific evidence," the test results show that only 35.39% of students are able to interpret data and scientific evidence (Permatasari, 2022). In another study, research results show that the science literacy skills of students in the topic of static fluids at Senior

High Schools in Pamekasan District are categorized as sufficient. In the aspect of "interpreting data and scientific evidence," the average score obtained is 45 (Milanto, Setyarsih, & Zainuddin, 2021).

Improving science literacy among junior high school students in Indonesia, particularly in the context of ecology and biodiversity, requires a multi-faceted approach that incorporates various teaching strategies and pedagogical innovations. One key approach is inquiry-based learning, which promotes active student engagement in scientific exploration. Studies have shown that inquiry-based methods, such as the "Sets Oriented" approach, can significantly enhance scientific literacy by integrating environmental, technological, and societal elements into traditional science curricula, leading to improved student performance (Pramesti, Rosdiana, & Surabaya, 2024). Another essential factor is teacher professional development, as teachers are pivotal in shaping students' understanding of science. The BRADER model, which provides structured instructional designs, has demonstrated efficacy in improving science literacy skills among junior high school students through continuous teacher training (Bernando, Manalu, & Simamora, 2024). Additionally, biodiversity education plays a crucial role in fostering students' ecological awareness, though there is a need to further develop their critical thinking skills in evaluating scientific information (Syafa, Dewangga, Prahani, & Hariyono, 2024). The integration of local cultural contexts into science education has also proven to be effective. For example, the use of culturally sensitive e-modules based on Balinese socio-cultural elements has significantly enhanced students' engagement and retention of scientific concepts, thereby improving their science literacy (Utari, Subagia, & Sudiatmika, 2024). Moreover, aligning ecology lessons with broader ecological themes and providing interactive, hands-on experiences have been found to boost science literacy scores. However, gaps remain in students' ability to critically evaluate scientific evidence, indicating that further emphasis on data interpretation is necessary (Utari et al., 2024). To support these efforts, assessment tools tailored to measure students' science literacy competencies, such as comprehensive essay-based instruments, have been developed to provide valuable insights into students' strengths and areas for improvement (Eka Fitria Nur Islamiyah & Santoso, 2024). Ultimately, a combination of strategies, including culturally relevant materials, inquiry-based learning, and robust teacher professional development, offers a promising pathway to improving science literacy among junior high school students in Indonesia, preparing them to navigate the complex scientific challenges of the future (Antika, Fardhani, Muttaqiin, Nugraheni, & Fiel'ardh, 2024).

The research findings assert that the competency profile of science literacy among junior high school students regarding biodiversity in Indonesia remains in the

Online ISSN 2655-2450 | Print ISSN 2655-2388

low category, especially in explaining phenomena scientifically, evaluating and designing scientific investigations, as well as interpreting data and scientific evidence. These findings align with various previous studies indicating the low science literacy skills of students in various regions in Indonesia. Therefore, more intensive efforts are needed to enhance science literacy among students through more effective and interactive teaching methods, as well as training for teachers to better develop science literacy skills. These research results are expected to serve as a foundation for policymakers in formulating more appropriate educational strategies to enhance the science literacy competence of students in Indonesia.

4. Conclusion

Based on the results and discussion of this research, it can be concluded that the competency profile of science literacy among junior high school students regarding biodiversity in Indonesia remains in the low category. This is evident from students' abilities in the three main domains of science literacy: explaining phenomena scientifically, evaluating and designing scientific investigations, and interpreting data and scientific evidence. In the competency of explaining phenomena scientifically, students tend to be more capable of answering questions with low and moderate difficulty levels, with correct answer percentages of around 66% and 67%, respectively, compared to questions with high difficulty levels, which only reach 55%. This finding is consistent with previous research that also indicates the low science literacy among junior high school students.

In the competency of evaluating and designing scientific investigations, students also demonstrate better abilities in questions with low difficulty levels (68%) and moderate difficulty levels (56%), while questions with high difficulty levels are only answered correctly by about 43% of students. This indicates that students still encounter difficulties when facing questions with higher levels of complexity. In the competency of interpreting data and scientific evidence, students exhibit the same pattern, with the highest percentage of correct answers in questions with low difficulty levels (78%), followed by questions with moderate difficulty levels (69%), and the lowest in questions with high difficulty levels (58%).

The findings of this research further reinforce previous discoveries indicating the low science literacy skills of students in various regions across Indonesia. Therefore, more intensive and sustainable efforts are necessary to enhance students' science literacy through more effective and interactive teaching methods as well as teacher training. It is hoped that the results of this research can serve as a reference for policymakers in formulating more appropriate educational strategies to improve the science literacy competence of students in Indonesia.

References

Afina, D. R., Hayati, M. N., & Fatkhurrohman, M. A. (2021). Profil Capaian Kompetensi Literasi Sains Siswa SMP Negeri Kota Tegal Menggunakan PISA. *PSEJ (Pancasakti Science Education Journal)*, 6(1), 10–21. https://doi.org/10.24905/psej.v6i1.111

Antika, R., Fardhani*, I., Muttaqiin, A., Nugraheni, D., & Fiel'ardh, K. (2024). Development of Critical Thinking Skills Based Handout on the Topic of the Human Respiratory System to Improve Science Literacy in Junior High School Students. *Jurnal Pendidikan Sains Indonesia*, *12*(1), 31–46. https://doi.org/10.24815/jpsi.v12i1.33432

Arsad, M. (2023). PjBL-STEM TO IMPROVE STUDENTS ' SCIENTIFIC LITERACY SKILLS.

Artat, H. (2014). *RANCANGAN PEMBELAJARAN SAINS MELALUI ANALISIS LITERASI SAINS SISWA KELAS VII SMP PADA TOPIK SUHU DAN PEMUAIAN*. Retrieved from https://www.semanticscholar.org/paper/RANCANGAN-PEMBELAJARAN-SAINS-MELALUI-ANALISIS-SAINS-Artat/a59288d8c3df06c8d8b197d4e17dabdbd2ffc9f6

Basam, F., Rusilowati, A., & Ridlo, S. (2018). Profil Kompetensi Sains Siswa dalam Pembelajaran Literasi Sains Berpendekatan Inkuiri Saintifik. *PSEJ (Pancasakti Science Education Journal)*, *3*(1), 1. https://doi.org/10.24905/psej.v3i1.800

Bernando, A., Manalu, A., & Simamora, R. (2024). The effectiveness of BRADeR learning model to improve junior high school students ' science literacy abilities.

Creswell, J. W. (2012). *Educational Research Methodology* (4th ed.). Boston.

Dewi, N. L. W. A., & Putra, I. K. D. A. S. (2022). Analisis Aspek Literasi Sains Pada Buku Tematik Pembelajaran Ipa Kelas Vi Di Sd Negeri 2 Cempaga Tahun 2022. *ORBITA: Jurnal Pendidikan Dan Ilmu Fisika*, *8*(2), 339. https://doi.org/10.31764/orbita.v8i2.11478

Eka Fitria Nur Islamiyah, B. A. D., & Santoso, A. (2024). DEVELOPMENT OF SCIENCE LITERACY ASSESSMENT INSTRUMENTS IN SCIENCE LEARNING USING CONTEXTUAL LEARNING MODELS FOR JUNIOR HIGH SCHOOL, *15*(1), 1–23.

Ellianawati, E., Meilanie, E. P., & Subali, B. (2021). Development of Science Literacy Assessment Based on Multi Representation of Rectilinear Motion Concept to Investigate Students' Science Literacy Competencies. *JIPF (Jurnal Ilmu Pendidikan Fisika)*, 6(3), 263. https://doi.org/10.26737/jipf.v6i3.2229

Online ISSN 2655-2450 | Print ISSN 2655-2388

Haikal, H., Rachmani, E., Setyo Nugroho, B. Y., Iqbal, M., Prasetya, J., & Yudi Nugroho, S. (2023). Digital Health Literacy Competencies of Students in Faculty of Health Science. *Disease Prevention and Public Health Journal*, *17*(1), 39–46. https://doi.org/10.12928/dpphj.v17i1.6448

Indasa, N., & Jauhariyah, M. N. R. (2024). Analysis of the Science Literacy Competency Profile of High School Students on Sound Wave Material. *Jurnal Phi Jurnal Pendidikan Fisika Dan Fisika Terapan*, *10*(2), 52. https://doi.org/10.22373/p-jpft.v10i2.24900

Irwan, A. P. (2020). Analisis Kemampuan Literasi Sains Pesrta Didik Ditinjau Dari Kemampuan Menyelesaikan Soal Fisika Di Sman 2 Bulukumba. *Jurnal Sains Dan Pendidikan Fisika*, *15*(3), 17–24. https://doi.org/10.35580/jspf.v15i3.13494

Maesaroh., Mega, E., Irdalisa, Astuti, Y., & Lestari, S. (2021). Profil Kompetensi Biologi Peserta Didik SMA Berdasarkan Hasil Ujian Nasional Berbasis Komputer (UNBK), *6*(1), 27–35.

Merta, I. W., Artayasa, I. P., Kusmiyati, K., Lestari, N., & Setiadi, D. (2020). Profil Literasi Sains dan Model Pembelajaran dapat Meningkatkan Kemampuan Literasi Sains. *Jurnal Pijar Mipa*, *15*(3), 223–228. https://doi.org/10.29303/jpm.v15i3.1889

Milanto, S., Setyarsih, W., & Zainuddin, A. (2021). Profil Kemampuan Literasi Sains Peserta Didik SMA di Kabupaten Pamekasan Dalam Bahasan Fluida Statis. *IPF: Inovasi Pendidikan Fisika*, *10*(1), 59–65. https://doi.org/10.26740/ipf.v10n1.p59-65

Mujahidin, G. R., Rahman, G. G. A., Wilujeng, I., & Nugroho, S. D. (2023). Profil Literasi Sains Aspek Kompetensi Peserta Didik Melalui Pembelajaran Berbasis Budaya Lokal Reyog Ponorogo. *Jurnal Penelitian Pendidikan IPA*, *9*(2), 965–970. https://doi.org/10.29303/jppipa.v9i2.2753

Nasor, A., Lutfi, A. L., & Prahani, B. K. (2023). Science Literacy Profile of Junior High School Students on Context, Competencies, and Knowledge. *IJORER : International Journal of Recent Educational Research*, *4*(6), 847–861. https://doi.org/10.46245/ijorer.v4i6.436

Nur'aini, F., Ulumuddin, I., Sari, L. S., & Fujianita, S. (2021). Meningkatkan Kemampuan Literasi Dasar Siswa Indonesia Berdasarkan Analisis Data PISA 2018. *Pusat Penelitian Kebijakan*, (3), 1–10.

OECD. (2018). PISA 2018 Draft Analytical Frameworks. *Pisa 2018*, (May 2016), 1–170. Retrieved from https://www.oecd.org/pisa/data/PISA-2018-draft-frameworks.pdf

Permatasari, N. (2022). Identifikasi Kompetensi Literasi Sains Peserta Didik Pada Pelajaran Ilmu Pengetahuan Alam di SMP Negeri 43 Rejang Lebong. *Jurnal Didaktika Pendidikan Dasar*, *6*(1), 23–46. https://doi.org/10.26811/didaktika.v6i1.799

Pramesti, S. A., Rosdiana, L., & Surabaya, U. N. (2024). Science , Environmental , Technology , Society Approach (SETS) in Improving Science Literacy of Junior High School Students, *6*(2), 106–115.

Shofatun, A., Agustini, R., & Rahayu, Y. S. (2021). Analysis of Students Science Literacy Competencies Based on Coastal Wisdom Use Moodle 's E-Learning During Covid 19 Pandemic. *Advances in Engineering Research*, *209*(Ijcse), 568–573.

Susanto, T. A. (2021). Pengembangan E-Media Nearpod melalui Model Discovery untuk Meningkatkan Kemampuan Berpikir Kritis Siswa di Sekolah Dasar (Development of Nearpod E-Media through the Discovery Model to Improve Students' Critical Thinking Abilities in Elementary Schools). *Basicedu*, *5*(5), 2–3. Retrieved from https://jbasic.org/index.php/basicedu

Syafa, N., Dewangga, A., Prahani, B. K., & Hariyono, E. (2024). Analysis of Science Literacy Profile and Development of E-Book Interactive Learning Media for Junior High School Students on Earth Structure Material, *10*(2), 409–420.

Utari, P. H., Subagia, I. W., & Sudiatmika, A. A. I. A. R. (2024). Development of Junior High School Science E-Module Integrated with Socio-Cultural of Balinese Society to Improvw Students Science Literacy. *Jurnal Penelitian Pendidikan IPA*, *10*(3), 1093–1104. https://doi.org/10.29303/jppipa.v10i3.7151

Online ISSN 2655-2450 | Print ISSN 2655-2388