Global Education Journal
Vol. 4, 2 (May-August, 2026), pp. 343-350
EISSN: 2986-6529, DOI: https://doi.org/10.59525/gej.1656

Implementation of the Use of Miniature Media of Erupting Mountains in Science Subjects in Improving the Skills and Understanding of Grade IV Elementary School Students

Ahmad Mubarok[1], Lailatul Fitriah[2], Yulia Eka Rahmah[3], Syafana Nur Arfiah[4], Veriska Rusmaniar[5], Indah Salsabila[6], Sidrotul Fajriyah[7], Muslihatundiniyah[8]

[1,2,3,4,5,6,7,8] Universitas Bina Bangsa, Indonesia; lailatulfitriah1217@gmail.com

ARTICLE INFO

IPAS; Learning Media; Miniature Mountain Erupts; Student Understanding.

Article history:

Received 2026-04-12
Revised 2026-05-16
Accepted 2026-06-19

ABSTRACT

Science learning in elementary school requires media that can help students understand concepts more realistically. One of the media that can be used is a miniature eruption volcano that can simulate the process of volcanic eruptions in a simple way. This study aims to find out how the use of miniature mountain media erupts in improving the skills and understanding of grade IV elementary school students. The method used in this study is qualitative research with a descriptive approach. Data was obtained through observation during the learning process. The results of the study show that the use of miniature media of erupting mountains is able to increase students' enthusiasm, activeness, and understanding of natural phenomena material. Through simple experimental activities, students can learn directly, discuss with groups, and more easily understand the process of volcanic eruptions. Thus, the miniature media of erupting mountains can be an effective alternative learning media in science science learning in elementary schools.

Corresponding Author:
Ahmad Mubarok
Universitas Bina Bangsa, Indonesia; lailatulfitriah1217@gmail.com

1. INTRODUCTION

The main cornerstone for creating exceptional human resources is education. The field of education has changed rapidly over the years. Teachers today are required to create a learning environment that is not only fun but also changes the mindset of students to be more critical, creative, and independent. Although in the past teachers controlled the learning process (teacher-centered), this paradigm has now changed to student-centered learning, where students play an active role in their education.

One of the most important human needs is education, which will be useful throughout life and act as a benchmark for the success of a country. The goal of education is to help students adapt and successfully engage in society. According to Fahrezi et al., education is a deliberate and planned effort to build a learning environment and learning process in which students actively develop their potential to

have the religious strength, self-control, personality, intelligence, noble character, and skills needed for themselves, their communities, their countries, and the world. (Fahrezi et al., 2020)

The natural environment is closely related to human life, so studying natural sciences becomes meaningful and relevant. Many people find it interesting because natural science helps explain how the world works and how humans can interact with it responsibly. Studying science not only builds knowledge of nature but also encourages seeing it as a dynamic and living system. (Sicily, 2025)

Science education also fosters important thinking habits, such as curiosity, careful observation, and critical thinking. As highlighted in Learning Media Development, cultivating a scientific attitude allows students to structure their understanding more regularly, sharpen their practical skills, and form an insightful perspective. With this ability, students are better equipped to apply their knowledge wisely in daily life while being more aware of the environment.

The use of simple experiments with the theme of volcanic eruptions as a science-based learning approach for early childhood has been shown to improve children's scientific attitudes, interest in learning, and science process skills. (Luluk Iffatur Rocmah & Nur Hidayatus Sholihah, 2020).

Children are more enthusiastic about learning and understanding natural phenomena when the approach is entertaining and practical. Children's personalities, perspectives, and enthusiasm for learning are greatly influenced by the elementary school experience. To arouse children's interest in the natural world around them, science education in particular needs to be presented in a fun way. (Hanan et al., 2025) One approach that has proven effective is the use of simple, exploratory, and participatory scientific experiments. Science in elementary school is not just a set of knowledge, but also a process of learning through hands-on practice. By presenting science in a fun way, scientific mindsets such as observation, inference, and communication can be firmly embedded. (Oktadika et al., 2025)

Kids between the ages of 7 to 12 can learn about the natural events happening in the universe by doing simple experiments in the Volcanic Eruption Science Game with the help of their parents or teachers. (Mardalena et al., 2021) Volcanic eruptions are a sub-theme of natural events in the subject of the cosmos. The goal of the game is to improve children's scientific features, especially the attitude dimension, which includes qualities similar to those found in social-emotional development, such as accountability, self-control, perseverance, integrity, and openness to the perspectives of others. (Asep Saepudin, 2011)

Through various strategies, such as curriculum development, classroom management by teachers, enforcement of rules and regulations, and the development of school programs, schools have emerged as the cornerstone of character education. In reality, learning innovation is a component of what educators do. Teachers may not be aware of this activity because it is part of daily procedures. Teachers are involved with things all the time, such as students, teaching resources, classrooms, schools, parents, and the community. This ensures that teachers always give their best to each student, assuming that students have mastered the material according to the curriculum requirements. (Inu et al., 2023)

Another important stage of development that can affect the quality of Indonesia's future human resources is elementary schools (SD). Students in elementary school naturally have curiosity. Although creativity is not a key component, a good education is one that encourages students' creativity. A person's innate curiosity and openness, which arise from investigating the surrounding environment and learning more about themselves, are the foundation of creativity. The realm of play is closely related to the characteristics of these elementary school students. Children's play habits can foster their creativity. While playing, children build their own imaginary worlds. According to Zain, as quoted by Rizki et al, it is emphasized that teachers need to be more creative in creating learning media so that active learning can occur. Active learning needs to be lively, fun, vibrant, and enthusiastic in order to increase student engagement. By developing students' cognitive, emotional, and psychomotor abilities, teachers are expected to improve their active learning. (Rizki et al., 2024)

The rapid advancement of science and technology in the 21st century ensures that students have all the necessary skills, including comprehension and critical thinking skills. It is expected that students are active, independent and able to work together in groups because the teacher-based learning paradigm has been replaced by students. There is still little group activity in the classroom, students rarely

participate in debates, and teachers usually use traditional methods based on textbooks. As a result of these circumstances, students' ability and understanding of the subject matter is affected. This situation affects students' ability and understanding of the subject matter. Strategic activities used to help children understand the information presented can also be referred to as comprehension.

The scarcity of educational resources in elementary schools and the lack of creativity among teachers in creating educational materials are other problems. However, in order for students to participate and have talent in the educational process, the Regulation of the Minister of Education and Culture Number 22 of 2016 stipulates that the process must stimulate, inspire, and encouraging. active and artistic in the educational process, children will find it easier to absorb knowledge and information through simple and easy-to-use educational materials.

The use of learning media has been shown to increase students' understanding of concepts and their level of understanding. One of the media used is the miniature media of Mount Eruptus. These media allow students to have a concrete learning experience, help them understand the process of volcanic eruptions, and improve their skills in dealing with disasters.

Provide context relevant to the environment and students. Understand the concept and context of science education better, which will improve their literacy and numeracy skills and make them more capable in their daily lives.

2. METHODS

This study employed a qualitative approach with a descriptive case study design to examine how the implementation of erupting volcano miniature media contributes to improving the skills and conceptual understanding of fourth-grade elementary school students in science learning (IPAS). A qualitative approach was selected because the primary objective of the study was not merely to measure learning outcomes quantitatively, but to explore the learning process, student engagement, interaction patterns, and the pedagogical mechanisms through which the learning media facilitates conceptual construction. This approach enables an in-depth interpretation of classroom phenomena within their natural context, allowing the researcher to capture authentic learning experiences and behavioral changes that emerge during the implementation of the instructional media. The research subjects consisted of fourth-grade students and the classroom teacher who directly participated in the learning activities, while the research object focused on the implementation of the erupting volcano miniature media and its influence on students' science process skills and conceptual understanding of volcanic eruptions. Such methodological alignment is consistent with qualitative inquiry, which emphasizes contextual understanding of educational practices and the meaning participants assign to learning experiences rather than statistical generalization (Creswell & Poth, 2018; Merriam & Tisdell, 2016).

Data were collected through participant observation, semi-structured interviews, and documentation to achieve methodological triangulation and enhance the credibility of the findings. Classroom observations were conducted systematically using structured observation sheets to record students' participation, collaboration, inquiry behaviors, communication skills, and conceptual responses during the experimental activities. Semi-structured interviews with the classroom teacher and selected students were employed to explore perceptions regarding the effectiveness of the miniature media, the learning process, and the extent to which the media supported conceptual understanding. Supporting documentation included lesson plans, students' worksheets (LKPD), photographs of classroom activities, and students' learning products generated during the experiment. The research instruments therefore comprised observation protocols, interview guides, field notes, and documentation checklists that were developed based on indicators of science process skills, active learning, and conceptual understanding. Instrument development was guided by construct validity principles to ensure that each indicator accurately represented the dimensions investigated in this study (Miles et al., 2020; Yin, 2018).

The collected data were analyzed using the interactive analysis model proposed by Miles, Huberman, and Saldaña, consisting of data condensation, data display, and conclusion drawing with

continuous verification. Data analysis was conducted iteratively throughout the research process to identify emerging themes related to students' engagement, collaborative learning, scientific inquiry, and conceptual understanding after the implementation of the erupting volcano miniature media. The trustworthiness of the findings was ensured through source triangulation, technique triangulation, prolonged engagement in the research setting, and member checking with the classroom teacher to confirm the accuracy of interpretations. The selection of this methodological framework is scientifically justified because the research seeks to explain how and why the learning media facilitates meaningful learning experiences rather than simply determining whether learning outcomes improve. Consequently, qualitative descriptive inquiry provides a comprehensive understanding of the instructional processes underlying students' conceptual development, making it the most appropriate method for answering the research objectives and producing contextually valid educational implications (Lincoln & Guba, 1985; Miles et al., 2020; Creswell & Poth, 2018).

3. FINDINGS AND DISCUSSION

Due to its location on the Ring of Fire, Indonesia is often hit by natural disasters such as earthquakes, tornadoes, and droughts, the impact of which is difficult to predict. However, other disasters such as floods, landslides, droughts, volcanic eruptions, tsunamis, and meteorological anomalies are still predictable. The local community often experiences social and psychological impacts or problems due to these disasters. This includes death, loss of property, and even psychological distress. Natural disasters, non-natural disasters, and social disasters fall under several categories of disasters. (Rashid, 2025)

In the case of natural disasters, educational institutions play two roles: as educational service providers, they have an obligation to protect students, and as educators, they have an obligation to teach students about natural disasters. An urgent and important life skills education program is disaster mitigation education. Early childhood attends school for at least two hours, and some spend up to eight hours (preschool or full-day daycare). Early childhood education should be the starting point for disaster mitigation education. Early childhood should be taught about natural disasters and what to do in the event of a disaster in the future. (Rahiem & Husna, 2020)

One of the strategies that Indonesia must implement to reduce the frequency of disasters that cause fatalities and accidents involving children under the age of fifteen is to educate elementary school students about disaster mitigation. If children are raised with a positive self-concept when it comes to knowing disaster mitigation, the incidence of child mortality is very high and experiences of stress and trauma will not actually occur. According to Nirmalawati as quoted by Agung Nugroho, children who know how to protect themselves in dangerous situations will be better able and have positive confidence without feeling afraid or anxious. (Nugroho, 2018)

The use of learning media is very important during the learning process because it can help clarify the material, make learning more interesting, and improve students' science process skills. Teachers can present the material more effectively and prevent students from feeling bored by using learning media. (Lina & Wakhidah, 2025)

The Latin word "media" means "medium", which is generally translated as "intermediary" means" of the sender of the message. Experts have defined media in a number of ways, such as Ahmad Rohani defining media as anything that can be used and serves as a tool, media, or means for teaching and learning as well as communication. According to Santoso, Hamijaya, every type of media is a medium used by individuals to convey an idea so that the idea or concept in question can be conveyed to the audience as a media. (Fadila et al., 2023)

David Kolb (1984) put forward the Experiential Learning hypothesis, which states that learning occurs when people actively participate in real-world events, which are then contemplated and conceptualized into new knowledge. Learning is more than just receiving information; Learning involves real experience. The volcanic eruption simulation experiment in this study gives students the

opportunity to see and feel the process of physical change, allowing them to understand scientific ideas both theoretically and practically. (Muhammad Suwigyo Prayogo et al., 2025)

Piaget (1973), who stated that elementary school students are at a concrete operational stage—a period in which they understand concepts through real and visible activities—supports this theory. Therefore, it is appropriate to apply an experimental approach to help students understand abstract scientific phenomena. (Muhammad Suwigyo Prayogo et al., 2025)

Basic science education aims to develop students' scientific thinking skills and their interest in natural events in addition to providing knowledge and theory (Ministry of National Education, 2013). Students must be actively involved in science learning through experimentation, observation, and conclusion making. Thus, in addition to introducing the idea of changing states of matter, activities such as building artificial volcanoes teach students to collaborate, acquire a scientific mindset, and take responsibility for their learning outcomes. (Muhammad Suwigyo Prayogo et al., 2025)

Primary science education aims to develop students' scientific thinking skills and their interest in natural events, in addition to providing knowledge and theory (Ministry of National Education, 2013). Students should be actively involved in science learning through experimentation, observation, and conclusion-making. Thus, in addition to introducing the idea of changing states of matter, experiments such as simulations of volcanic eruptions teach students to collaborate, acquire a scientific mindset, and take responsibility for their learning outcomes. (Muhammad Suwigyo Prayogo et al., 2025)

Children can learn how something works and why it happens by doing simple experiments in science. Teachers use scientific teaching as a tool to help students achieve the goals of the activity. Therefore, teachers must ensure that their teaching strategies will capture students' attention, stimulate their curiosity, and encourage them to use their imagination. Children's general skills and intelligence are greatly affected when they learn by observing, imitating, and conducting basic experiments. As a result, we must support children's growth and development by offering educational activities that are appropriate to their interests, needs, and ages. (Chintya & Andriani, 2025)

Students can easily learn and experiment with the realistic simulations created by the aforementioned media simulations. The main components of the miniature eruption mountain media are the mini eruption mountain model, experimental equipment and equipment such as (baking soda, vinegar, food coloring, and liquid soap). Usage guide, a student worksheet that forms the media of a mini volcanic eruption (LKPD). Each element is methodically crafted to support the individual and student experience in a systematic way. The phenomenon of volcanoes is related to the basic science of schools.

Children actively engage all their senses in every activity by directly participating in various actions. In addition, children participate directly in the experiment, not just observe it, thus giving them the opportunity to learn and experience new things. The children were invited to ask questions about the ongoing process in this experiment, including the reasons and effects of the reactions that occurred in their simulated volcanoes. These questions show how well this approach fosters children's ability to ask questions and understand scientific ideas. Therefore, by using simple and entertaining methods, volcanic eruption experiments improve children's critical thinking skills while deepening their understanding of the scientific method. (Ramadhani & Mashudi, 2025)

Based on the results of ongoing learning activities, the use of miniature media can generate a positive response from students. from the ongoing learning. Students are more enthusiastic and involved in the learning process. They listen to explanations from the teacher, but also participate in simple group-based exercises. This shows that concrete learning media can increase student involvement in learning activities.

The results of other research conducted by Prayogo, Sari, and Maghfirotusyam show that the use of miniature volcanoes in science learning significantly improves students' understanding of concepts. The study uses this experimental design with pre-test and post-test pretest. Post test. The study's findings show that students' average scores improve after using the medium of miniature volcanoes in learning. The average score increased after using the virtual media of the volcano for learning. In

addition, the students appeared to be more involved and active in the learning process than those who only used the lecture method. (Prayogo et al., 2025)

In addition to improving conceptual understanding, collaboration between students. The use of miniature media of erupting mountains can also increase student cooperation. According to research conducted by Jihan, Rukmana, and Hanifah, the use of erupting mountain engineering in classroom learning can improve students' ability to work together and collaborate in groups. This is due to the fact that during the experiment process, students must work together to prepare materials, conduct experiments, and discuss the results. (Karimah et al., 2025)

Therefore, the use of miniature erupted mountains in IPAS education has several benefits, such as improving students' conceptual understanding, increasing their engagement and commitment to learning, and improving their teamwork skills. In addition, this medium provides a more real learning experience so that students can understand the phenomena that occur in their surroundings.

Because it's simple, safe, and entertaining, fake volcanic eruption experiments involving chemical interactions between vinegar and baking soda are helpful teaching tools. Students will have an easier time understanding the idea of change of form thanks to this experiment, which realistically depicts the transition from liquid to gas. This activity is recommended by a number of educational institutions and interactive learning resources as a hands-on learning exercise that is not only engaging but also fosters a spirit of scientific inquiry, observation skills, and active debate in the classroom.

The first step in creating a disaster-ready society is to educate children about disaster mitigation. Because they know how to reduce disaster hazards, students, teachers, and the community will no longer be confused and frightened when disasters occur. To reduce disaster hazards, it is hoped that this knowledge can be shared with local residents. (Ningtyas & Risina, 2018).

The findings of this study indicate that the implementation of erupting volcano miniature media substantially enhanced students' conceptual understanding, learning engagement, and science process skills during IPAS instruction. Students demonstrated greater enthusiasm in observing the volcanic eruption simulation, actively formulated questions regarding the chemical reactions that produced the eruption effect, and collaboratively interpreted the relationship between the experimental observations and the scientific concepts being studied. These outcomes suggest that meaningful conceptual understanding emerged because students experienced the learning process directly rather than receiving information passively through teacher explanations. From the perspective of Experiential Learning Theory, learning occurs when learners transform concrete experiences into conceptual knowledge through observation, reflection, and active experimentation (Kolb, 1984). Similarly, Piaget's theory of cognitive development explains that fourth-grade students are situated within the concrete operational stage, in which abstract scientific concepts become easier to comprehend when represented through tangible objects and observable phenomena (Piaget, 1973). Consequently, the erupting volcano miniature functioned not merely as a visual aid but as a cognitive scaffold that reduced conceptual abstraction and enabled students to construct scientific understanding through authentic inquiry, observation, and collaborative problem-solving. These findings reinforce the argument that inquiry-oriented instructional media facilitate deeper conceptual change by connecting scientific explanations with students' direct experiences (Prayogo et al., 2025; Oktadika et al., 2025).

The present findings are consistent with previous studies reporting that erupting volcano simulations significantly improve conceptual understanding and students' active participation in science learning. Prayogo et al. (2025) found that the use of volcano miniatures increased students' mastery of science concepts because experimental activities encouraged observation, prediction, and evidence-based reasoning. Likewise, Karimah et al. (2025) demonstrated that volcano engineering media strengthened collaborative skills as students collectively prepared materials, conducted experiments, and interpreted results. Similar conclusions were reported by Hanan et al. (2025) and Ramadhani and Mashudi (2025), who emphasized that hands-on scientific experiments stimulate curiosity, critical thinking, and scientific communication among elementary school learners. Nevertheless, the present study extends previous research by highlighting that the instructional

effectiveness of erupting volcano miniature media cannot be attributed solely to the physical model itself, but rather to the integration of collaborative inquiry, teacher facilitation, guided questioning, and reflective discussion throughout the learning process. This suggests that learning media become pedagogically meaningful only when embedded within learner-centered instructional strategies that encourage knowledge construction rather than passive observation.

From a broader educational perspective, these findings provide important implications for elementary science instruction by demonstrating that concrete experimental media can simultaneously foster cognitive, affective, and psychomotor development. The improvement in conceptual understanding occurred because students actively negotiated scientific meanings through collaborative interaction, compared observations with prior knowledge, and continuously refined their explanations based on empirical evidence. This learning mechanism aligns with the principles of constructivist learning theory, which argues that knowledge is actively constructed through social interaction and authentic experiences rather than transmitted directly from teacher to learner (Vygotsky, 1978). Moreover, the incorporation of disaster-related contexts within the erupting volcano simulation contributes to disaster mitigation literacy, enabling students to connect classroom learning with real-life environmental phenomena. Compared with previous studies that primarily focused on academic achievement or science process skills, the present research demonstrates a more comprehensive educational contribution by integrating conceptual understanding, collaborative competence, and contextual disaster awareness into a single instructional experience. Therefore, the findings support the growing consensus that experiential and inquiry-based science learning represents an effective pedagogical approach for developing scientifically literate elementary students who are capable of applying scientific knowledge to authentic environmental challenges (Lina & Wakhidah, 2025; Rashid, 2025; Chintya & Andriani, 2025).

4. CONCLUSION

Based on the results of the research conducted, it can be concluded that the use of miniature mountain media in learning science science in grade IV of elementary school has a positive impact on the learning process and outcomes of students. Because students can observe and simulate volcanic processes directly through simple experiments, these media can encourage more verbal learning. Students engage in continuous learning learning student activities, students show a higher level of interest and activeness compared to learning activities that only use verbal explanations. In addition, group-based learning activities also help students develop their ability to work together, communicate, and achieve progress. Therefore, the use of using miniature media of erupting mountains can help students understand the concept of natural phenomena in a more straightforward and easy-to-understand way. This medium can also be considered as one of the effective alternative media for teaching IPAS in schools.

REFERENCES

Asep Saepudin. (2011). Pembelajaran Sains Pada Program Pendidikan Anak Usia Dini. *Jurnal Teknodik*, *15*(2), 213–226.

Chintya, P., & Andriani, A. (2025). Mempelajari Proses Letusan Gunung Berapi melalui Eksperimen. *Jurnal Ilmiah Research Student*, *2*(2), 643–655. https://doi.org/https://doi.org/10.61722/jirs.v2i2.5727

Fadila, A., Nurakiyah, K. R., Kanya, N. A., Hidayat, S. P., & Setiawan, U. (2023). Pengertian Media, Tujuan, Fungsi, Manfaat dan Urgensi Media Pembelajaran. *Journal of Student Research (JSR)*, *1*(2), 1–17.

Fahrezi, I., Taufiq, M., Akhwani, A., & Nafia'ah, N. (2020). Meta-Analisis Pengaruh Model Pembelajaran Project Based Learning Terhadap Hasil Belajar Siswa Pada Mata Pelajaran IPA Sekolah Dasar. *Jurnal Ilmiah Pendidikan Profesi Guru*, *3*(3), 408. https://doi.org/10.23887/jippg.v3i3.28081

Hanan, S., Setyo Rini, A., Darmawan, A., Hari Mardika, A., Farid Fadhlurrahman, D., & Rizki, F. (2025).

Eksperimen Edukasi Gunung Meletus untuk Anak Sekolah Dasar Sebagai Upaya Pengenalan Awal Reaksi Kimia Sederhana. *Jurnal Tiyasadarma*, *3*(1), 23–30. https://doi.org/10.62375/jta.v3i1.630

Inu, N. Al, Fitriani, Bani, & Winandar. (2023). Peran Guru Sebagai Agen Pembaharu Dalam Meningkatkan Kualitas Pembelajaran Yang Inovatif di Sekolah. *Journal On Education*, *5*(2), 1696–1701. https://doi.org/https://doi.org/10.31004/joe.v5i2.806

Karimah, J., Rukmana, K., & Hanifah, N. (2025). Efektivitas Penggunaan Media Rekayasa Gunung Meletus Dalam Meningkatkan Keterampilan Kolaborasi Dan Pemahaman Siswa Kelas IV SD. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, *10*(2), 2548–6950. https://doi.org/https://doi.org/10.23969/jp.v10i02.26905

Lina, F., & Wakhidah, N. (2025). Pengalaman Belajar Siswa SMP Dalam Mengembangkan Keterampilan Proses Sains Melalui Media Simulasi Gunung Meletus. *Pendas : Jurnal Ilmiah Pendidikan Dasar*, *10*(4), 2548–6950. https://doi.org/https://doi.org/10.23969/jp.v10i04.37540

Luluk Iffatur Rocmah, & Nur Hidayatus Sholihah. (2020). Penerapan Metode Eksperimen untuk Meningkatkan Keterampilan Proses Sains Anak Usia Dini. *Incrementapedia: Jurnal Pendidikan Anak Usia Dini*, *2*(1), 1–7. https://doi.org/10.36456/incrementapedia.vol2.no01.a2510

Mardalena, R., Hendri Mulyana, E., & UPI Kampus Tasikmalaya, P. (2021). *Jurnal Ceria (Cerdas Energik Responsif Inovatif Adaptif) Pengembangan Dasar Kebutuhan Permainan Sains Gunung Meletus Untuk Memfasilitasi Perkemban-Gan Sosial Emosional Anak Usia Dini*. *4*(5), 2714–4107.

Muhammad Suwigyo Prayogo, Rezawati Rohmah, & Avini Rahmi Ramadani. (2025). Analisis Pengalaman Belajar Siswa melalui Eksperimen Gunung Meletus Buatan dalam Memahami Konsep Perubahan Wujud Benda di MI Miftahul Ulum. *Edukasi Elita : Jurnal Inovasi Pendidikan*, *2*(4), 184–192. https://doi.org/https://doi.org/10.62383/edukasi.v2i4.2419

Ningtyas, D. P., & Risina, D. F. (2018). Peningkatan Self Awareness Anak Usia Dini Melalui Media Video Mitigasi Bencana Gunung Meletus. *Al-Athfal : Jurnal Pendidikan Anak*, *4*(2), 113–124. https://doi.org/10.14421/al-athfal.2018.42-01

Nugroho, A. (2018). Pengembangan Model Pembelajaran Mitigasi Bencana Gunung Meletus Di Sekolah Dasar Lereng Gunung Slamet. *Jurnal Pengabdian Masyarakat Multidisiplin*, *1*(2), 131–137. https://doi.org/https://doi.org/10.36341/jpm.v1i2.413

Oktadika, U., Junita, A., Hermita, N., & Barokah, R. G. S. (2025). Implementasi Pembelajaran Berbasis Problem Based Learning Melalui Media Miniatur Gunung Meletus Dalam Mata Pelajaran Ipas Kelas Iv Di Sdn 147 Pekanbaru. *Jurnal Ilmiah Pendidikan Dasar (JIPDAS)*, *5*(4), 4256–4261. https://doi.org/https://doi.org/10.37081/jipdas.v5i4.3352 Article

Prayogo, M. S., Sari, I. N., Maghfirotusyam, F., & Rosyida, T. F. (2025). Efektivitas Media Miniatur Gunung Berapi dari Bahan Alami terhadap Pemahaman Konsep IPA di MI Al- Azhar Ajung Jember Muhammad. *Jurnal Pendidikan Dan Pembelajaran Sains Indonesia*, *8*(1), 2623–0852.

Rahiem, M. D. H., & Husna, K. (2020). Buku Cerita Bergambar untuk Pembelajaran Mitigasi Bencana Gunung Meletus bagi Anak Usia Dini. *PAUD Lectura: Jurnal Pendidikan Anak Usia Dini*, *3*(2), 54–67. https://doi.org/https://doi.org/10.31849/paud-lectura.v3i02.3974

Ramadhani, A. P., & Mashudi, E. A. (2025). Robot, Galaksi, Dan Gunung Meletus: Analisis Sistematis Peran Eksperimen Sains Dalam Meningkatkan Kemampuan Berpikir Kritis Anak Usia Dini. *Jurnal Lentera Anak*, *6*(1), 11–32. https://doi.org/https://doi.org/10.34001/jla.v6i1.7572

Rasyid, M. (2025). Pembelajaran IPA Di SD. *Jurnal Pendidikan Mosikolah*, *4*(2), 608–614. https://doi.org/https://pendidikan.e-jurnal.web.id

Rizki, A. M., Saputra, D. W., & Hayun, M. (2024). Implementasi Pembelajaran Berbasis Project Based Learning melalui Media Miniatur Gunung Meletus dalam Mata Pelajaran IPAS Kelas IV di SDN Pondok Cabe Ilir 01. *Seminar Nasional Dan Publikasi Ilmiah 2024 FIP UMJ*, 2645–2656. https://doi.org/https://jurnal.umj.ac.id/index.php/SEMNASFIP/index

Sisilia, A. (2025). Simulasi Erupsi Gunung Berapi Belajar Proses Alam Semesta secara Praktis. *Jurnal Pendidikan Mosikolah*, *4*(2), 587–594. https://doi.org/https://pendidikan.e-jurnal.web.id