# DAFTAR PUSTAKA


Abdulrahaman, M. D., Faruk, N., Oloyede, A. A., Surajudeen-Bakinde, N. T., Olawoyin, L. A., Mejabi, O. V., Imam-Fulani, Y. O., Fahm, A. O., & Azeez, A. L. (2020). Multimedia Tools in The Teaching and Learning Processes: A Systematic Review. *Heliyon*, 6(11), 1–14. https://doi.org/10.1016/j.heliyon.2020.e05312

Abdurrahman, D., & Nurmatin, S. (2023). Profil Argumentasi Calon Guru IPA pada Materi Energi Alternatif. *Jurnal Kajian Pendidikan IPA*, 3(1), 211-216. https://doi.org/10.52434/jkpi12387

Adiilah, I. I., & Haryanti, Y. D. (2023). Pengaruh Model Problem Based Learning Terhadap Kemampuan Berpikir Kreatif Siswa pada Pembelajaran IPA. *Papanda Journal of Mathematics and Sciences Research*, 2(1), 49-56. https://doi.org/10.56916/pjmsr.v2i1.306

Ambarawati, D. S. H. E., Muslim, & Hernani. (2021). Analisis Kemampuan Argumentasi Siswa SMP pada Materi Pencemaran Lingkungan. *Jurnal Pendidikan IPA*, 10(1), 13-17. https://doi.org/10.20961/inkuiri.v10i1.29780

Ary, D., Jacobs, L. C., Sorensen, C., & Razavieh, A. (2010). *Introduction to Research in Education*. USA: Wadsworth, Cengage Learning.

Aulia, I. M., Hikmawati, dan Susilawati. (2022). Pengaruh Model Pembelajaran Berbasis Masalah terhadap Kemampuan Pemecahan Masalah Fisika Peserta Didik pada Materi Usaha dan Energi. *Jurnal Pendidikan Fisika dan Teknologi*, 8(SpecialIssue), 52-57. https://doi.org/10.29303/jpft.v8iSpecialIssue.3558

Ajri, A. S., Irawan, N. I., & Perdana, R. (2025). Analisis Keterampilan Memecahkan Masalah melalui Model Problem Based Learning (PBL) berbantuan Liveworksheets pada Materi Gelombang Mekanik. *Jurnal Inovasi Pembelajaran Fisika*, 3(3), 72-83. doi.org/10.30822/magneton.v3i2.4626

Aristawati, N. K., Sadia, I. W., & Sudiatmika, A. (2018). Pengaruh Model Problem Based Learning terhadap Pemahaman Konsep Belajar Fisika Siswa SMA. *Jurnal Pendidikan Fisika Undiksha*, 8(1), 31-41. https://doi.org/10.23887/jjpf.v8i1.20573

Aran, M. U. O., Ware, K., & Bambut, K. E. N. (2024). Kajian Literatur: Mengembangkan Keterampilan Abad-21 Peserta Didik dalam Pembelajaran Kimia. *Biogenerasi Jurnal Pendidikan Biologi*, 9(1),982-991. https://doi.org/10.30605/biogenerasi.v9i1.3654

Al-Makdum, H. W., Rinto., & Fatnah, N. (2026). Efektivitas Problem Based Learning Berbantuan Media Web HTML 5 Package untuk Meningkatkan

Kemampuan Berpikir Kreatif Siswa Kelas Vii SMP. *Eduproxima: Jurnal Ilmiah Pendidikan IPA*, 8(1), 758-774. https://doi.org/10.29100/.v8i1.8900

Al-Khayyat, A. T. K., & Mahmood, S. A. (2023). Peer-to-Peer Media Streaming with HTML 5. *International Journal of Electrical and Computer Engineering (IJECE),* 13(2), 2356-2362. https://doi.org/10.11591/ijece.v13i2.pp2356-2362

Alatas, F., & Oktaviani, M. (2020). Problem Based Learning Model using Exe-Learning for Mechanical Waves. *EAI Innovating Research*.

Arisantoso., Anwar, S., Lithardo, F. R., Faisal, M., Sugianto, A., Hakim, M. Z., Sokhikhah, K., Abdillah, N., Diputra, R., Ramadhan, A. P., Nursaputra., Hakim, A. M., Nauli, R., Tafonao, F., Prayoga, G. N. A., & Samadara, S. (2024). *Buku Ajar Pemograman Web Dasar.* Jawa Tengah: Eureka Media Aksara.

Arikunto, S. (2018). Dasar-dasar Evaluasi Pendidikan. Jakarta: PT Bumi Aksara

Arends, R. I. (2007). *Learning To Teach*. New York: McGraw Hills.

Arends Richard I. (2012). *Learning to Teach (B. Mejia* (*ed.*); *9th ed.*). Library of Congress Cataloging.

Apriyanti, L. D., Fatmasari, D., Supriyana. (2023). *Multimedia Interaktif Kesehatan Gigi Anak Tunarungu dengan Bahasa Isyarat Berbasis Android*. Penerbit NEM.

Asuri, A.R., Suherman, A., & Darman, D.R. (2021). Penerapan Model Problem Based Learning (PBL) Berbantuan Mind Mapping dalam Pembelajaran Fisika untuk Meningkatkan Kemampuan Pemecahan Masalah pada Materi Usaha dan Energi. *Jurnal Penelitian Pembelajaran Fisika*, 12(1), 22-28. https://doi.org/10.26877/JP2F.V12I1.7624

Agusni, H. P., Abdurrahman, & Wahyudi, I. (2017). Pengaruh Skill Argumentasi Menggunakan Model Problem-Based Learning Terhadap Hasil Belajar Siswa. *Jurnal Pembelajaran Fisika*, 5(4), 97-99. https://jurnal.fkip.unila.ac.id/index.php/JPF/article/view/13697

Barlian, R. A., Izazi, R. R., Tonanda, S. T., Nafisah, S. A., Kurniawan, R., Rafif, R. F. A., Rijanto, T., & Yazid. (2025). Pengembangan Media Pembelajaran Interaktif Berbasis Web Menggunakan Pendekatan Problem Based Learning (PBL) pada Mata Pelajaran Informatika untuk Meningkatkan Motivasi Belajar Siswa Kelas X SMK Muhammadiyah 1 Surabaya. *Jurnal Ilmiah Pendidikan Dasar*, 10(02), 305-319. https://doi.org/10.23969/jp.v10i02.24691

Busyari, A & Sinaga, P. (2021). Pengembangan Instrumen Tes Model Ideation-Explanation untuk Mengukur Kemampuan Berpikir Kreatif dalam Pemecahan Masalah. *Jurnal Pijar MIPA*, 16(1), 57-63.

Choden, T., & Kijkuakul, S. (2020). Blending Problem Based Learning with Scientific Argumentation to Enhance Students' Understanding of Basic Genetics. *International Journal of Instruction*, 13(1), 445-462. https://doi.org/10.29333/iji.2020.13129a

Cynthia, R. E., dan Sihotang, H. (2023). Melangkah Bersama di Era Digital: Pentingnya Literasi Digital untuk Meningkatkan Kemampuan Berpikir Kritis dan Kemampuan Pemecahan Masalah Peserta Didik. *Jurnal Pendidikan Tambusai,* 7(3), 31712-31723. https://doi.org/10.31004/jptam.v7i3.12179

Darmawan, P., Yohanes, B., & Hadi, M. R. (2023). Analisis Penyebab Rendahnya Kemampuan Pemecahan Masalah Calon Guru Matematika Menggunakan APKL, USG, dan Diagram Fishbone. *Jurnal Tadris Matematika*, 6(2),199-218. http://dx.doi.org/10.21274/jtm.2023.6.2.199-218

Devi, N. D. C., Susanti Vh, E., & Indriyanti, N. Y. (2018). Analysis of High School Students' Argumentation Ability in The Topic of Buffer Solution. *Jurnal Kimia Dan Pendidikan Kimia (JKPK)*, 3(3), 152-159. https://doi.org/10.20961/jkpk.v3i3.23308

Dewi, D. P., Sismulyasih, N., Putri, D. S., & Afni, N. (2023). *Pemain Bit IPAS Pengembangan Media Interaktif Berbasis IT IPAS.* Semarang: Cahya Ghani Recovery.

Dewantari, T., Hasnunidah, N., & Maulina, D. (2022). Kajian Kemampuan Argumentasi Siswa pada Materi Pokok Animalia Melalui Pendekatan Saintifik di SMA dengan Peringkat Akreditasi yang Berbeda. Bioedusains: Jurnal Pendidikan Biologi dan Sains, 5(1), 267-278. https://doi.org/10.31539/bioedusains.v5i1.3285

Ekaputra, F. (2020). Efektivitas Laboratorium Virtual Kimia Berbasis Hypertext Markup Language 5 untuk Meningkatkan Sikap Ilmiah dan Prestasi Belajar. *Tarbawy : Jurnal Pendidikan Islam*, 7(1), 6-16. https://doi.org/10.32923/tarbawy.v7i1.1201

Ema, A., Diego, R., & Andrea, V. (2016). Physics Teaching with Simulation in HTML 5. *Journal of Computer Science and Technology (JCS&T)*, 16(1), 47-51. https://journal.info.unlp.edu.ar/JCST/article/view/513

Fadilah, M. (2023). Pengaruh Model Pembelajaran Problem Based Learning terhadap Kemampuan Argumentasi Ilmiah Peserta Didik pada Materi Perubahan Lingkungan di SMA Negeri 1 Tanjung Mutiara. *Jurnal Bionatural*, 10(2), 31-36. https://ejournal.uncm.ac.id/index.php/bio/article/download/622/493

Faize, F. A., Husain, W., & Nisar, F. (2018). A Critical Review of Scientific Argumentation in Science Education. *Eurasia Journal Of Mathematics,*

*Science And Technology Education,* 14(1), 475-483. https://doi.org/10.12973/ejmste/80353

Firmansyah, L. F., Ahied, M., Tamam, B., Wulandari, A. Y. R., & Yasir, M. (2023). Pengembangan Multimedia Interaktif Berbasis HTML 5 pada Materi Sistem Tata Surya. *Jurnal Natural Science Educational Research*, 6 (2), 143-149.

Franke, L., & Haehn, D. (2020). Modern Scientific Visualizations on the Web. Informatics, 7(37), 1-35. https://doi.org/10.3390/informatics7040037

Gumisirizah, N., Muwonge, C. M., & Nzabahimana, J. (2024). Effect of Problem-Based Learning on Students' Problem-Solving Ability to Learn Physics. *Physic Education*, 59, 1-11.

Gunawan, G., Harjono, A., Nisyah, M., Kusdiastuti, M., & Herayanti, L. (2020). Improving Students' Problem-Solving Skills using Inquiry Learning Model Combined with Advance Organizer. *International Journal of Instruction*, 13(4), 427-442. https://doi.org/10.29333/iji.2020.13427a

Hanisah., Irhasyuarna, Y., & Yulianda, R. (2022). Pengembangan Media Pembelajaran Interaktif Menggunakan ISpring Suite 10 pada Materi Reproduksi Tumbuhan untuk Mengukur Hasil Belajar. *JUPEIS: Jurnal Pendidikan dan Ilmu Sosial,* 1(3), 6-16. https://jurnal.jomparnd.com/index.php/jp

Handoko. (2020). *Interactive Learning dengan Moodle*. Padang: RAM Media.

Heller, K., & Heller, P. (2010). *Cooperative Problem Solving in Physics A User's Manual*. U.S: Department of Education.

Heller, P., Keith, R., & Anderson, S. (1992). Teaching problem solving through cooperative grouping. Part 1: Group versus individual problem solving. *American Journal of Physics*, 60(7), 627-636. https://doi.org/10.1119/1.17117

Hsiao, H. S., Chen, J. C., Chen, J. H., Zeng, Y. T., & Chung, G. H. (2022). An Assessment of Junior High School Students' Knowledge, Creativity, and Hands-on Performance Using PBL via Cognitive–Affective Interaction Model to Achieve STEAM. *Sustainability*, 14(9), 1-19. https://doi.org/10.3390/su14095582

Hardini, S. D., & Alberida, H. (2022). Analisis Kemampuan Argumentasi Peserta Didik. *Biodidaktika: Jurnal Biologi dan Pembelajarannya*, 17(1), 93-99. https://dx.doi.org/10.30870/biodidaktika.v17i1.16108

Hardianti, B. S. W., Sukarso, A.A., dan Yamin, M. (2025). Pengaruh Penggunaan Model Problem Based Learning untuk Meningkatkan Kemampuan Argumentasi Ilmiah Siswa Kelas X dalam Pembelajaran Biologi. *Journal of Authentic Research*, 4(2), 1527-1541. https://doi.org/10.36312/jar.v4i2.3549

Heryana, N., dkk. (2023). *Multimedia Interaktif: Dampak Multimedia Interaktif Terhadap Hasil Belajar.* Padang: Get Press Indonesia.

Himmah, E. F., Astutik, S., Aristya, P. D. (2024). Development of HTML 5-Based Mobile Learning Media to Enhance Critical Thinking Skills of Elementary School Students in IPAS Learning. *Jurnal Pendidikan dan Pengembangan Pendidikan*, 11(4), 836-846. https://doi.org/10.33394/jp.v11i4.13065

Ilhami, A., Wahyuni, S., & Putra, N, D, P. (2023). Meningkatkan Keterampilan Proses Sains Siswa Melalui Model Pembelajaran Problem Based Learning: Sistematik Literatur Review. *Edu-Sains*, 12(2), 8-15. https://doi.org/10.22437/jmpmipa.v11i2.25501

Indriyani, N., Damayanti, I., Muhajir., & Hatip, A. (2025). Pengaruh Model PBL Berbantuan Media Flipbook dan Gaya Belajar terhadap Kemampuan Pemecahan Masalah Siswa pada Materi Energi Terbarukan. *Jurnal Kreativitas Pendidikan Modern*, 7(4), 65-82.

Irwanto, D. (2024). *Pemrograman Web dengan Notepad++.* Jawa Tengah: Eureka Media Aksara.

Joyce, B., Weil, M., & Calhoun, E. (2009). *Models of Teaching Ninth Edition*. United States of America: Pearson Education.

Jundu, R., Jelatu, S, Jeramat, E., & Ningsi, G. P. (2023). The Effectiveness of Problem-Based Learning Model to Improve Problem Solving Skills and Concept Understanding in Acid Base Solution. *Jurnal Pendidikan MIPA*, 24(1), 161-171. http://dx.doi.org/10.23960/jpmipa/v24i1.pp161-171

Kiryakova, G. (2022). Engaging Learning Content for Digital Learners. *TEM Journal*, 11(4), 1958-1964. https://doi.org/10.18421/TEM114-65

Kardoyo, Nurkhin, A., Muhsin, & Pramusinto, H. (2020). Problem-Based Learning Strategy: Its Impact on Students' Critical and Creative Thinking Skills. *European Journal of Educational Research*, 9(3), 1141–1150. https://doi.org/10.12973/eu-jer.9.3.1141

Laia, H., Rahmatsyah, & Simanjuntak, M. P. (2021). Development Interactive Multimedia Based on Web Elasticity and Hooke Law Topic in High School. *Journal of Physics: Conference Series*, 1811(012117), 1-6. https://doi.org/doi:10.1088/1742-6596/1811/1/012117

Laksana, F. T., Wathoni, M., Alam, A., & Efendi, Y. (2025). Implementasi Modul Pembelajaran Interaktif Berbasis Website Hyper Text Markup Language 5 SMK Informatika Ciputat. *Edusaintek: Jurnal Pendidikan, Sains dan Teknologi*, 12(2), 785-798. https://doi.org/10.47668/edusaintek.v12i2.1229

Lestari, I., Kuswandi, D., & Sudjimat, D. A. (2023). Influence of Guided Inquiry Learning Strategies Assisted with Virtual Laboratories in Thematic Learning

on The Critical Thinking Abilities of Primary School Students. *Jurnal Penelitian Pendidikan IPA*, *9*(Special Issue), 967–973. https://doi.org/10.29303/jppipa.v9iSpecialIssue.6262

Lendeng, L. C., Sugiarso, B. A., & Rumagit, A. M. (2021). Media Interaktif Berbasis Animasi pada Materi Minyak Bumi untuk Kelas XI Sekolah Menengah Atas. *Jurnal Teknik Elektro dan Komputer*, 16(2), 183–192. https://doi.org/10.35793/jti.v16i2.34087

Lutfiani, R., Hamdiyanti, Y., & Suhaeni, L. (2024). Improvement of Student's Argumentation Skill Through Problem-Based Learning in the Concept of Nerveous and Endocrine System Disorders. *Asimilation: Indonesian Journal of Biology Education,* 7(1), 47-56. https://doi.org/10.17509/aijbe.v7i1.58589

Madani, S. F., Sutiarso, S., & Triana, M. (2025). The Effect of Using H5P Interactive Media on Students' Mathematical Critical Thinking Ability. *Journal of Innovation and Research in Primary Education*, 4(2), 128-135. https://doi.org/10.56916/jirpe.v4i2.1210

Magdalena, I., Syaifulloh, A., Salsabila, A. (2023). Asumsi Dasar dan Desain Pembelajaran. *Jurnal Sindoro: Cendikia Pendidikan*, 2(5), 10-20. https://doi.org/10.9644/sindoro.v2i5.1721

Machali, I. (2021). *Metode Penelitian Kuantitatif Panduan Praktis Merencanakan, Melaksanakan, dan Analisis dalam Penelitian Kuantitatif*. Yogyakarta: Fakultas Ilmu Tarbiyah dan Keguruan UIN Sunan Kalijaga Yogyakarta.

Meltzer, D. E. (2002). The Relationship Between Mathematics Preparation and Conceptual Learning Gains in Physics: A Possible "Hidden Variable" in Diagnostic Pretest Scores. *American Association of Physics Teachers*. 70(12), 1259-1268. https://doi.org/10.1119/1.1514215

Mu'minin, A., & Fauziah, H. N. (2022). Efektivitas Model Pembelajaran Problem-based Learning Berbasis Socioscientific terhadap Kemampuan Argumentasi Peserta Didik. *Jurnal Tadris IPA Indonesia,* 2(2), 195-204. https://doi.org/10.21154/jtii.v2i2.865

Mutawa, A. M., Muttawa, J. A. K. A,, & Sruthi, S. (2023). The Effectiveness of Using H5P for Undergraduate Students in the Asynchronous Distance Learning Environment. *Applied Sciences*, 13(8), 1-15. https://doi.org/10.3390/app13084983

Muslim, M., Sihombing, R. A., Zakwandi, R., & Karimi, A. (2024). Evaluating Students' Argumentation Skills Using an Argument-Generating Learning Model Supported by Toulmin's Argumentation Pattern in Physics Concepts. *Jurnal Pendidikan IPA Indonesia*, 13(4), 606-622. https://doi.org/10.15294/jpii.v13i4.13139

Muspiroh, N., Shofiyah., Nada, S., & Kusmawan, U. (2024). Enhancing Students' Scientific Argumentation Skills through STEM-Based Problem Based Learning. *International Journal of Research in STEM Education (IJRSE)*, 6(1), 85-96. https://doi.org/10.33830/ijrse.v6i1.1691

Muthohir, M. (2021). *Mudah Membuat Web Bagi Pemula (Mengenal HTML, HTML 5, CSS dan JavaScript)*. Semarang: Yayasan Prima Agus Teknik.

Nahdhiah, U., Untari, S., & Ekawati, R. (2025). Development of HTML 5 Flip-Assited Electronic Module Cultural Heritage Material for Grade 5 Elementary School Students. *Paedagoria: Jurnal Kajian, Penelitian dan Pengembangan Kependidikan*, 16(3), 305-312. https://doi.org/10.31764/paedagoria.v16i3.29351

Naidu, V.R., Singh, B., Agarwal, A., Farei, K. A., Ismaily, K. A., Harrasi, R. A., & Vaidhyanathan, N. (2021). HTML 5 Based E-Learning Authoring to Facilitate Interactive Learning During Covid-19 Pandemic: A Review. *IJAEDU-International E-Journal of Advances in Education*, 7(20), 122-130. https://doi.org/10.18768/ijaedu.964863

Napitupulu, J. F., Simanjuntak, M. P., & Sinurat, J. (2019). The Effect of Problem Based Learning Model on Students Learning Results and Students' Problem Solving Skills. *Indonesian Science Education Research (ISER)*, 1(1), 47-53. https://doi.org/10.24114/iser.v1i1.15500

Ningsih, E., Anggraini, R. D., dan Kartini. (2023). Penerapan Model Problem Based Learning untuk Meningkatkan Kemampuan Pemecahan Masalah Matematis Siswa Kelas VII-E SMP Negeri 23 Pekanbaru. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, 7(3), 2250-2260. https://doi.org/10.31004/cendekia.v7i3.2647

Noer, H. A., Setiono, S., & Pauzi, R. Y. (2020). Profil Kemampuan Argumentasi Siswa SMP pada Materi Sistem Pernapasan. *Jurnal Pelita Pendidikan*, 8(2), 138-144. https://doi.org/10.24114/jpp.v8i2.17702

Nugraha, U., Ilham, I., Harjono, H. S., & Setiawan, A. (2023). Learning Videos with Gymnastic Materials on The Character of Students' Discipline and Cooperation. *Journal of Education Research and Evaluation*, 7(1), 98-107. https://doi.org/10.23887/jere.v7i1.45277.

Nugroho, N. C., & Purnama, B. E. (2017). Perancangan Inovasi Konten Web Radio Streaming dan Podcasting pada Radio Puspa FM Pacitan. *Pembangunan Sistem Penjualan Online Pada Toko Indah Furniture Surakarta*, 4(4), 56-62. http://dx.doi.org/10.3112/speed.v4i4.1161

OECD. (2019). *Programme for International Student Assessment (PISA) results from PISA 2018*. Paris: OECD Publishing.

OECD. (2023). *Programme for International Student Assessment (PISA) results from PISA 2022*. Paris: OECD Publishing.

Pamungkas, C. A., & Yanuar, A. T. (2020). *Pengantar Pemograman Web dengan PHP dan HTML*. Surakarta: Indonusan Publisher.

Parlindungan, P., Azzahra, S. F., & Simatupang, N. I. (2024). Penerapan Model Pembelajaran Problem Based Learning dalam Meningkatkan Kemampuan Berargumentasi Siswa. *Cendikia: Jurnal Pendidikan dan Pengajaran*, 2(8), 459-466. https://doi.org/10.572349/cendikia.v2i8.2388

Perdana, R., Riwayani., Jumaidi, J., & Rosana, D. (2020). Modification Level and Test of Scientific Argumentation Skill: Development and Validity. *International Journal of Evaluation in Research and Education* (IJERE), 9(3), 769-777. http://doi.org/10.11591/ijere.v9i3.20594

Puspitaningsih, I., Maspupah, M., Solikha, M. (2023). Keterampilan Argumentasi Peserta Didik melalui Problem Based Learning Berbantun Media Nearpod Materi Perubahan Lingkungan. *Gunung Djati Conference Series*, 30, 169-175.

Ponidi, Dewi, A. K. D., Trisnawati, Puspita, D., Nagara, E. S., Kristin, M., Puastuti, D., Andewi, W., Anggraeni, L., & Utami, B. (2021). *Model Pembelajaran Inovatif dan Efektif*. Indramayu: CV Adanu Abimata.

Ramadani, E. M., & Nana, D. (2020). Penerapan Problem Based Learning Berbantuan Virtual Lab Phet pada Pembelajaran Fisika Guna Meningkatkan Pemahaman Konsep Siswa SMA: Literature Review. *In Jurnal Pendidikan Fisika Tadulako Online (JPFT)*, 8(1),

Renaldy, S., Dewi, W. S., Putra, A., & Hidayati. (2023). The Effect of Problem-Based Learning Model on Students' Physics Problem Solving Ability: A Meta-Analysis. *Jurnal Penelitian Pendidikan IPA*, 9(4), 2103-2109. https://doi.org/10.29303/jppipa.v9i4.3291

Ridwan, Y. H., Zuhdi, M., Kosim, K., & Sahidu, H. (2021). Pengembangan Media Pembelajaran Interaktif Berbasis Model Problem Based Learning untuk Meningkatkan Kemampuan Berpikir Kreatif Fisika Peserta Didik. ORBITA: *Jurnal Pendidikan Dan Ilmu Fisika*, 7(1), 103-108. https://doi.org/10.31764/orbita.v7i1.3832

Riwayani, R., Perdana, R., Sari, R., Jumadi, J., dan Kuswanto, H. (2019). Analisis Kemampuan Argumentasi Ilmiah Siswa pada Materi Optik: Problem-Based Learning Berbantuan Edu-Media Simulation. *Jurnal Inovasi Pendidikan IPA*, 5(1), 45-53. https://doi.org/10.21831/jipi.v5i1.22548

Rijkard, J. (2016). Analisis dan Perancangan Aplikasi e-Commerce Website Builder Berbasis Web Menggunakan Responsive Web Design dan Custom Framework. *Jurnal Informatika Dan Bisnis*, 5(2), 78-90.

Samosir, E., Makmuri., & Aziz, T. A. (2022). Kemampuan Literasi Matematika: Kaitannya dengan Kemampuan Pemecahan Masalah. *Jurnal Riset Pendidikan Matematika Jakarta*, 4(1), 60-72. https://doi.org/10.21009/jrpmj.v4i1.23026

Sama, H., & Hartanto, E. (2021). Studi Deskriptif Evolusi Website dari HTML1 sampai HTML 5 dan Pengaruhnya terhadap Perancangan dan Pengembangan Website. *Conference on Management, Business, Innovation, Education and Social Science (Combines)*, 1(2), 589-596.

Saputri, E. M., Purwanti, S., & Marwiyati, U. (2023). Peningkatan Hasil Belajar melalui Model Problem Based Learning pada Materi Waktu Kelas 1 SD Muhammadiyah Pandes Tahun Ajaran 2022/2023. *Kalam Cendekia: Jurnal Ilmiah Kependidikan*, 11(2), 263-270. https://doi.org/10.20961/jkc.v11i2.75591

Sari, A. P., & Suhendi. (2020). Rancang Bangun Sistem Informasi Pengelolaan Talent Film Berbasis Aplikasi Web. *Jurnal Informatika Terpadu*, 6(1), 29-37. https://journal.nurulfikri.ac.id/index.php/JIT

Sari, D. A. P., Widodo, W., Rosdiana, L., Sari, D. P., & Aulia, E. V. (2023). H5P Based Learning Media to Reinforce Pre-Service Science Teachers' Critical Thinking Skills: Development and Validation. *Jurnal Penelitian Pendidikan IPA*, 9(12), 10689-10697. https://doi.org/10.29303/jppipa.v9i12.5452

Setiawan, D. A. & Fadillah, M. (2023). Pengaruh Model Pembelajaran Problem Based Learning terhadap Kemampuan Argumentasi Ilmiah Peserta Didik pada Materi Perubahan Lingkungan di SMA Negeri 1 Tanjung Mutiara. *Jurnal Bionatural*, 10(2), 31-36. https://doi.org/10.61290/bio.v10i2.622

Simanjuntak, M. P., Marpaung, N., Sinaga, L., & Siregar, N. (2021). The Effect of Problem Based Learning Based on Multiple Representations to the Students' Science Conceptual Understanding. *Journal of Physics: Conference Series*, 1819(012029), 1-8. https://doi.org/10.1088/1742-6596/1819/1/012029

Simanjuntak, M. P., Hutahaean, J., Marpaung, N., & Ramadhani, D. (2021). Effectiveness of Problem-Based Learning Combined with Computer Simulation on Students' Problem-Solving and Creative Thinking Skills. *International Journal of Instruction*, 14(3), 519-534. https://doi.org/10.29333/iji.2021.14330a

Sinaga, Y. E., Darmaji., Kurniawan, D. A. (2025). Upaya Meningkatkan Kemampuan Pemecahan Masalah Siswa melalui Model Pembelajaran Problem Based Learning pada Materi Pengukuran di Kelas X. *Jurnal Ilmiah Ilmu Pendidikan (JIIP)*, 8(4), 4528-4532. https://doi.org/10.54371/jiip.v8i4.7642

Siswanto, E., & Meiliasari. (2024). Kemampuan Pemecahan Masalah pada Pembelajaran Matematika: Systematic Literature Review. *Jurnal Riset*

*Pembelajaran Matematika Sekolah (JRPMS)*, 8(1), 45-59. https://doi.org/10.21009/jrpms.081.06

Susino, S. A., Destiniar., dan Sari, E. F. P. (2024). Pengaruh Model Pembelajaran Problem Based Learning (PBL) terhadap Kemampuan Pemecahan Masalah Matematis Siswa Kelas X SMA. *Jurnal Pendidikan Matematika*, 08(01), 53-61. https://doi.org/10.31004/cendekia.v8i1.2918

Sugiyono (2013). *Metode Penelitian Kuantitatif, Kualitatif dan R & D*. Bandung: Alfabeta.

Susilowati, R. D., dan Wahyudi, W. (2020). Efektivitas Model Pembelajaran Inquiry dan Problem Based Learning terhadap Kemampuan Pemecahan Masalah pada Mata Pelajaran Matematika Kelas IV SD. *Jurnal Edukasi Matematika dan Sains*, 8(1), 49-59.

Suraya, S., Setiadi, A. E., & Muldayanti, N. D. (2019). Argumentasi Ilmiah dan Keterampilan Berpikir Kritis Melalui Metode Debat. *Edusains*, 11(2), 233-241. http://doi.org/10.15408/es.v11i2.10479

Suryanti, A., Putra, I. N. A. S., & Nurrahman, F. (2021). Pengembangan Media Pembelajaran Energi Alternatif Berbasis Multimedia Interaktif. *Jurnal Teknologi Pembelajaran Indonesia,* 11(2), 147-156. https://doi.org/10.23887/jurnal_tp.v11i2.651

Suryani, M., Jufri, L. H., & Putri, T. A. (2020). Analisis Kemampuan Pemecahan Masalah Siswa Berdasarkan Kemampuan Awal Matematika. *Mosharafa: Jurnal Pendidikan Matematika,* 9(1), 119-130. https://doi.org/10.31980/mosharafa.v9i1.597

Sudirman. (2023). *Pembelajaran Fisika Berbasis Riset*. Padang: CV. Radianka Jaya Utama.

Susanti, S., Dewi, P. I. A., Saputra, N., Kumala, A., Wulandari, F., Tahrim, T., Jefryadi., Jonata., Rismayani., Kusumawardani, R. N., Bahtiar, I. R., & Sholeh, M. (2021) *Desain Media Pembelajaran SD/MI*. Aceh: Yayasan Penerbit Muhammad Zaini.

Syahid, L., Djabba, R., & Mukhlisa, N. (2021). Penerapan Model Pembelajaran Auditory Intellectually Repetition untuk Meningkatkan Hasil Belajar Siswa Sekolah Dasar di Kabupaten Barru. *Pinisi Journal of Education*, 1(2), 2189–2198. https://ojs.unm.ac.id/PJE/article/view/25981

Toulmin, S. E. (2003). *The Uses of Argument: Updated edition. In The Uses of Argument: Updated Edition*. New York: Cambridge University Press.

Tanfiziyah, R., Rochintaniawati, D. (2021). Profil Kemampuan Argumentasi Siswa Mengenai Isu Sosio Saintifik dalam Pembelajaran Online. *Jurnal Biosfer, J.Bio & Pend. Bio*, 6 (1), 6-12. https://doi.org/10.23969/biosfer.v6i1.4081

Usparianti, Y., Marlina, L., & Wiyono, K. (2023). Analysis of Physics E-LKPD Needs Based on Problem-Based Learning to Improve Students' Critical Thinking Skills. *Jurnal Pendidikan Fisika dan Teknologi (JPFT)*, 9(1), 177-184. https://dx.doi.org/10.29303/jpft.v9i1.5093

Wardani, D. A. W. (2023). Problem Based Learning: Membuka Peluang Kolaborasi Dan Pengembangan Skill Siswa. *Jurnal Penelitian dan Penjaminan Mutu*, 8(1), 1-19.

Wang, J. (2020). Scrutinising the Positions of Students and Teacher Engaged in Argumentation in a High School Physics Classroom. *International Journal of Science Education*, 42(1), 25-49. https://doi.org/10.1080/09500693.2019.1700315

Winarto, W., Sarwi, S., Cahyono, E., & Sumarni, W. (2022). Developing a Problem-Solving Essay Test Instrument (PSETI) in the Instruction of Basic Science Concepts in Ethnoscience Context. *Journal of Turkish Science Education*, 19(1), 37-51. https://doi.org/10.36681/tused.2022.108

Wibawanto, W. (2020). *Laboratorium Virtual Konsep dan Pengembangan Simulasi Fisika.* Semarang: Lppm Unnes.

Widyawati, C., Katminingsih, Y. and Widodo, S. (2022). Pengembangan Media Pembelajaran Interaktif Matematika Menggunakan ISpring Suite 10 pada Materi Aritmatika Sosial. *Seminar Nasional Pendidikan Matematika UMT*, 76, 128-134. http://dx.doi.org/10.31000/cpu.v0i0.6863

Zulkarnain, Utami, L. S., Sabaryati, J., Islahudin, Subhan, & Arisandi, D. (2024). Design of Virtual Laboratory Media Based on HTML 5 Canvas and Graphical User Interface in Physics Learning. *Journal of Instructional and Development Reasearches*, 4(6), 477-485. https://doi.

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