

DAFTAR RUJUKAN

- Abubakar, R. 2021. *Pengantar Metodologi Penelitian*. SUKA-Press UIN Sunan Kalijaga.
- Amelia, M., Tawil, M., & Arsyad, A. A. 2023. Deskripsi Kemampuan Literasi Sains Aspek Kompetensi Peserta Didik. *Jurnal Pendidikan Dan Pembelajaran*, 3(2), 80–84.
- Arends, R. I. 2012. *Learning To Teach* (Ninth Edit). McGraw-Hill.
- Arikunto, S. 2021. *Dasar-Dasar Evaluasi Pendidikan Edisi 3*. Bumi Aksara.
<https://books.google.co.id/books?id=j5EmEAAAQBAJ>
- Bahri, A., Putriana, D., & Idris, I. S. 2018. Peran PBL dalam Meningkatkan Keterampilan Pemecahan Masalah Biologi. *Jurnal Sainsmat*, VII(2), 114–124.
- Ceylan, S., & Ozdilek, Z. 2015. Improving a Sample Lesson Plan for Secondary Science Courses within the STEM Education. *Procedia - Social and Behavioral Sciences*, 177, 223–228.
- El-Deghaidy, H., & Mansour, N. 2015. Science Teachers' Perceptions of STEM Education: Possibilities and Challenges. *International Journal of Learning*, 1(1), 51–54.
- Esema, D., Susari, E., & Kurniawan, D. 2012. PROBLEM-BASED LEARNING. *Satya Widya*, 28(2), 167–173.
- Hardani, Andriani, H., Ustiawaty, J., Utami, E. F., Istiqomah, R. R., Fardani, R. A., Sukmana, D. J., & Auliya, N. H. 2020. *Metode Penelitian Kualitatif & Kuantitatif*. CV. Pustaka Ilmu.
- Hasan, E. N., Rusilowati, A., & Astuti, B. 2018. Analysis of Students Science Literacy Skills in Full Day Junior High School. *Journal of Innovative Science Education*, 7(2), 237–244. <http://journal.unnes.ac.id/sju/index.php/jise>
- Hasriana, Sari, N. I., & Ahmad, F. 2022. Analisis Tingkat Keterampilan Pemecahan Masalah Biologi Pada Peserta Didik SMA di kota Makassar. *Venn: Journal of Sustainable Innovation on Education, Mathematics and Natural Sciences*, 3(1), 40–44. <https://doi.org/10.53696/2964-867x.145>
- Iolanessa, L., Kaniawati, I., & Nugraha, M. G. 2020. Pengaruh Model Problem Based Learning (PBL) Menggunakan Pendekatan STEM Dalam Meningkatkan Keterampilan Pemecahan Masalah Siswa SMP. *Jurnal Wahana Pendidikan Fisika*, 5(1), 113–117.
- Junaidi. 2020. Implementasi Model Pembelajaran Problem Based Learning dalam Meningkatkan Sikap Berpikir Kritis. *Jurnal Pendidikan Dan Pembelajaran Ilmu Pengetahuan Sosial*, 9(1), 25–35.
- Kelley, T. R., & Knowles, J. G. 2016. A conceptual framework for integrated STEM education. *International Journal of STEM Education*, 3(11), 1–11. <http://dx.doi.org/10.1186/s40594-016-0046-z>
- Kennedy, T. J., & Odell, M. R. L. 2014. Engaging Students In STEM Education. *Science Education International*, 25(3), 246–258.

- Kimianti, F., & Prasetyo, Z. K. 2019. Pengembangan E-Modul IPA Berbasis Problem Based Learning untuk Meningkatkan Literasi Sains Siswa. *Jurnal Teknologi Pendidikan*, 07(02), 91–103.
- Kiyici, F. B. 2007. Science, Technology & Literacy. *The Turkish Online Journal of Educational Technology (TOJET)*, 6(2).
- Mpofu, V. 2019. A Theoretical Framework for Implementing STEM Education. In *Theorizing STEM Education in the 21st Century*.
- Nugraha, D., & Octavianah, D. 2020. Diskursus Literasi Abad 21 di Indonesia. *Jurnal Pendidikan Edutama*, 7(1), 107–126.
- OECD. 2009. *PISA 2009 Assessment Framework: Key Competencies in Reading , Mathematics and Science*. OECD-PISA.
- Paramitha, T. 2019. *Pengaruh Model Problem Based Learning Terhadap Kemampuan Literasi Sains Peserta Didik pada Materi Pokok Perubahan Lingkungan*. Skripsi. Fakultas Keguruan dan Ilmu Pendidikan, Universitas Lampung.
- Polya, G. 2004. *How To Solve It: A New Aspect of Mathematical Method*. Princeton University Press.
- Rahmadani, F., Setiadi, D., Yamin, M., & Kusmiyati. 2022. Analisis Kemampuan Literasi Sains Biologi Peserta Didik SMA Kelas X di SMAN 1 Kuripan. *Jurnal Ilmiah Profesi Pendidikan*, 7(4b), 2726–2731.
- Rahmat, M., Muhandjito, & Zulaikah, S. 2014. Kemampuan Pemecahan Masalah Melalui Strategi Pembelajaran Thinking Aloud Pair Problem Solving Siswa Kelas X SMA (Halaman 108 s.d. 112). *Jurnal Fisika Indonesia*, 18(54), 108–112.
- Shofiyah, N., & Wulandari, F. E. 2018. Model Problem Based Learning (PBL) dalam Melatih Scientific Reasoning Siswa. *JPPIPA (Jurnal Penelitian Pendidikan IPA)*, 3(1), 33–38.
- Simatupang, H., & Ionita, F. 2020. Pengaruh Model Problem Based Learning Terhadap Kemampuan Pemecahan Masalah Materi Pencemaran Lingkungan Siswa SMA Negeri 13 Medan. *Jurnal Biolokus*, 3(1), 245–251. <https://doi.org/10.30821/biolokus.v3i1.680>
- Supiandi, M. I., & Julung, H. 2016. Pengaruh Model Problem Based Learning (PBL) terhadap Kemampuan Memecahkan Masalah dan Hasil Belajar Kognitif Siswa Biologi SMA. *Jurnal Pendidikan Sains*, 4(2), 60–64.
- Supriwardi, L., Zulyusri, Z., & Lufri, L. 2021. Meta-Analisis : Pengaruh Model Problem Based Learning terhadap Kemampuan Literasi Sains Peserta Didik. *Bioilmi: Jurnal Pendidikan*, 7(2), 120–128.
- Surif, J., Ibrahim, N. H., & Mokhtar, M. 2012. Conceptual and Procedural Knowledge in Problem Solving. *Procedia - Social and Behavioral Sciences*, 56, 416–425. <https://doi.org/10.1016/j.sbspro.2012.09.671>
- Syarah, M. M., Rahmi, Y. L., & Darussyamsu, R. 2021. Analisis Penerapan Pendekatan

- STEM Pada Pembelajaran Biologi. *BIO-EDU: Jurnal Pendidikan Biologi*, 6(3), 236–243.
- Tamaela, E. S., Kdise, I. I., & Huwae, V. D. 2021. Penerapan Model Asesmen Problem Based Learning dengan Pendekatan STEM Guna Melatih Kemampuan Berpikir Tingkat Tinggi. *Jurnal Aplikasi Kebijakan Publik & Bisnis*, 2(1), 158–170.
- Tan, O. S. 2002. Problem-Based Learning : More Problems for Teacher Education. *Review of Educational Research and Advances for Classroom Teachers*, 21(1), 43–55.
- Tan, O. S. 2003. *Problem-Based Learning Innovation: Using Problems to Power Learning in the 21st Century*. Cengage Learning.
- Torlakson, T. 2014. *Innovate: A Blueprint for Science, Technology, Engineering, and Mathematics in California Public Education*.
- Trilling, B., & Fadel, C. 2009. *21st Century Skills: Learning for Life in Our Times*. Jossey-Bass.
- Widiana, R., Maharani, A. D., & Rowdoh. 2020. Pengaruh Model Problem Based Learning terhadap Kemampuan Literasi Sains Siswa SMA. *JURNAL TA'DIB*, 23(1), 87–94.
- Widyastutik, I., Ibrahim, M., & Mulyanratna, M. 2014. Penerapan Model Problem Based Instruction (PBI) pada Tema Pencemaran Air untuk Melatih Keterampilan Penyelesaian Masalah. *Jurnal Pendidikan Sains E-Pensa*, 02(01), 1–7.