

Conference Name: EduCon Tokyo – International Conference on Education, 13-14 April, 2026
Conference Dates: 13-Apr- 2026 to 14-Apr- 2026
Conference Venue: TKP Ichigaya Building, 8 Ichigaya Hachiman-cho, Shinjuku-ku, Tokyo 162-0844
Appears in: PUPIL: International Journal of Teaching, Education and Learning (ISSN 2457-0648)
Publication year: 2026

Anatri Desstya, 2026

Volume 2026, pp. 144-145

DOI- <https://doi.org/10.20319/ictel.2026.144145>

This paper can be cited as: Desstya, A. (2026). Identification of Students' Misconceptions on Heat Concepts Using a Four-Tier Multiple-Choice Instrument in Elementary School. EduCon Tokyo – International Conference on Education, 13-14 April, 2026. Proceedings of Teaching & Education Research Association (TERA), 2026, 144-145

IDENTIFICATION OF STUDENTS' MISCONCEPTIONS ON HEAT CONCEPTS USING A FOUR-TIER MULTIPLE-CHOICE INSTRUMENT IN ELEMENTARY SCHOOL

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Abstract

Heat is a topic that is abstract in nature of science, which creates opportunities for misconceptions among students. On the other hand, the process of identifying misconceptions is still rarely conducted at the elementary school level. This study aims to: (a) identify misconceptions related to the concept of heat, and (b) identify the factors causing misconceptions about the concept of heat. This research employed a qualitative approach, involving 40 elementary school students in Surakarta selected through purposive random sampling. The instrument used was a four-tier multiple-choice test. The results showed that: (a) 11.35% of students understood the concept, 33.35% experienced misconceptions, 12.2% guessed the concept, and 43.1% had insufficient understanding of the concept. (b) Factors contributing to misconceptions included information from textbooks and stories heard from parents or siblings. Therefore, it is necessary to conduct

content analysis of textbooks and to develop a home–school–based intervention model to address misconceptions.

Keywords:

Heat Concept, Misconceptions, Elementary School Students, Four-Tier Diagnostic Test, Science Education