

**FOUR-TIER DIAGNOSTIC TEST AS A TOOL TO ASSESS STUDENTS
MISCONCEPTION ABOUT EARTH AND SOLAR SYSTEM IN EAST
BANDUNG REGION**

RESEARCH PAPER

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FOUR-TIER DIAGNOSTIC TEST AS A TOOL TO ASSESS STUDENTS MISCONCEPTION ABOUT EARTH AND SOLAR SYSTEM IN EAST BANDUNG REGION

Oleh

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Sebuah skripsi yang diajukan untuk memenuhi salah satu syarat memperoleh gelar
Sarjana Pendidikan pada Fakultas Pendidikan Matematika dan Ilmu Pengetahuan
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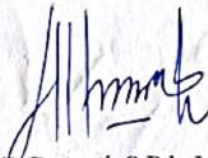
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**FOUR-TIER DIAGNOSTIC TEST AS A TOOL TO ASSESS
MISCONCEPTIONS ABOUT EARTH AND SOLAR SYSTEM AMONG
JUNIOR HIGH SCHOOL STUDENTS IN EAST BANDUNG REGION**

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FOUR-TIER DIAGNOSTIC TEST AS A TOOL TO ASSESS STUDENTS MISCONCEPTION ABOUT EARTH AND SOLAR SYSTEM IN EAST BANDUNG REGION

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ABSTRACT

Conceptual misunderstanding or misconception is one of the common obstacles that often arise in the learning process, potentially hindering the achievement of expected learning outcomes. This study focuses on exploring and analyzing the conceptual problems experienced by students when learning the topic of Earth and the Solar System. To support this objective, a multiple-choice questionnaire was used as an instrument, designed based on a four-tier diagnostic test format and thoroughly validated. Of the 14 test items subjected to validation, 12 were declared valid and covered various key concepts within the topic. Using the Convenience Sampling method, a total of 547 eighth-grade junior high school students in the East Bandung area who had already studied this topic were selected as the research sample. The results showed that 33% of students had a low level of understanding of Earth and Solar System concepts, which also affected their self-confidence. In addition, around 25% of students experienced misconceptions, making it the second most prevalent category in conceptual understanding. Meanwhile, only 21% of students demonstrated scientific understanding. The categories of false positive and false negative responses were found in the range of 10–12% each. These findings highlight the importance of using appropriate diagnostic instruments to identify misconceptions and the need for instructional strategies that can more effectively improve students' conceptual understanding.

Keyword: Misconceptions, Earth and Solar System, Four-Tier Diagnostic Test

TES DIAGNOSTIK EMPAT TINGKAT SEBAGAI ALAT UNTUK MENGUKUR MISKONSEPSI TENTANG BUMI DAN TATA SURYA DI KALANGAN SISWA SMP DI BANDUNG TIMUR

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ABSTRAK

Kesalahan pemahaman konsep atau miskonsepsi merupakan salah satu hambatan yang kerap muncul dalam proses pembelajaran, sehingga berpotensi mengganggu tercapainya hasil belajar yang diharapkan. Penelitian ini difokuskan untuk menggali dan menganalisis permasalahan konseptual yang dialami siswa saat mempelajari topik bumi dan tata surya. Untuk mendukung tujuan tersebut, digunakan instrumen berupa angket pilihan ganda yang dirancang berdasarkan format tes diagnostik empat tingkat dan telah melewati tahap validasi secara menyeluruh. Dari 14 butir soal yang diuji validitasnya, 12 dinyatakan valid dan mencakup berbagai konsep kunci dalam topik tersebut. Dengan menggunakan metode *Convenience Sampling*, sebanyak 547 siswa kelas 8 SMP di wilayah Bandung Timur yang telah mempelajari topik ini dijadikan sebagai sampel penelitian. Hasil penelitian menunjukkan bahwa sebanyak 33% siswa memiliki pemahaman yang rendah terhadap konsep-konsep Bumi dan Tata Surya, yang juga berdampak pada rendahnya kepercayaan diri mereka. Selain itu, sekitar 25% siswa mengalami miskonsepsi, menjadikannya kategori kedua terbanyak dalam pemahaman konsep. Sementara itu, siswa yang menunjukkan pemahaman ilmiah hanya mencapai 21%. Adapun kategori hasil positif palsu dan negatif palsu masing-masing ditemukan pada kisaran 10–12%. Temuan ini menggarisbawahi pentingnya penggunaan instrumen diagnostik yang tepat dalam mengidentifikasi miskonsepsi serta perlunya strategi pembelajaran yang mampu memperbaiki pemahaman konseptual siswa secara lebih efektif.

Kata Kunci: Miskonsepsi, Bumi dan Tata Surya, Tes Diagnostik Empat Tingkat

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