

**PENGEMBANGAN LKPD BERBASIS PENDEKATAN SCIENCE,  
TECHNOLOGY, ENGINEERING, AND MATHEMATICS  
(STEM) UNTUK MENUMBUHKAN KETERAMPILAN  
BERPIKIR KRITIS SISWA KELAS X MIA  
SMA SWASTA PARULIAN 1 MEDAN**

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**Abstrak**

Penelitian ini bertujuan untuk merancang dan menghasilkan Lembar Kegiatan Peserta Didik (LKPD) berbasis Pendekatan *Sains Technology Engineering and Mathematics* (STEM) pada materi Perubahan Lingkungan. Desain penelitian yang digunakan adalah jenis penelitian dan pengembangan. Subjek dalam penelitian ini adalah Ahli Materi, Ahli Pembelajaran, Ahli Desain, Guru bidang studi Biologi dan siswa kelas X-MIA-1 SMA Swasta Parulian 1 Medan. Pengumpulan data dilakukan dengan instrumen berupa lembar tanggapan/respon. Analisis data menggunakan analisis deskriptif kuantitatif dan kualitatif. Perancangan LKPD berbasis Pendekatan STEM dilakukan dengan menggunakan model pengembangan instruksional ADDIE yaitu melalui tahap *Analysis, Development, Implementation, dan Evaluation* karena pada model ini setiap tahap dilakukan revisi hingga didapatkan produk LKPD yang lebih baik. Hasil penelitian menunjukkan bahwa perancangan LKPD berbasis Pendekatan STEM berdasarkan penilaian ahli materi diperoleh persentase rata-rata 94,64% dengan kriteria layak, penilaian ahli pembelajaran diperoleh persentase rata-rata 75% dengan kriteria layak, penilaian ahli desain diperoleh persentase rata-rata 76,78% dengan kriteria layak penilaian Guru bidang studi Biologi diperoleh persentase rata-rata 93,33% dengan kategori penilaian sangat layak, sedangkan hasil tanggapan/respon dari peserta didik diperoleh persentase rata-rata 95,82% dengan kriteria penilaian baik. Hasil dari penggunaan LKPD Berbasis Pendekatan STEM yang dirancang dalam menumbuhkan keterampilan berpikir kritis diperoleh skor rata-rata 82,57% dengan jumlah peserta didik yang tuntas sebanyak 25 orang. LKPD Berbasis STEM pada materi Perubahan Lingkungan yang telah dirancang memperoleh kriteria penilaian "Sangat Tinggi" dan telah memenuhi persyaratan efektif digunakan dalam menumbuhkan keterampilan berpikir kritis serta layak digunakan dalam proses pembelajaran Biologi pada materi perubahan lingkungan.

Kata kunci : *LKPD, STEM, ADDIE, Berpikir Kritis*

**DEVELOPMENT OF EDUCATION WORKSHEET BASED ON SCIENCE,  
TECHNOLOGY, ENGINEERING, AND MATHEMATICS APPROACHES  
(STEM) TO GROW SKILLS CRITICAL THINKING OF MIA CLASS X  
STUDENTS PARULIAN PRIVATE HIGH SCHOOL 1 MEDAN**

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**Abstract**

This study aims to design and produce Student Worksheets (LKPD) based on the Science Engineering Technology and Mathematics Approach (STEM) on the subject of Environmental Change. The research design used is a type of research and development. Subjects in this study were Material Experts, Learning Experts, Design Experts, Biology Study Teachers and X-MIA-1 Class Parulian 1 Private High School Medan. Data collection was carried out with instruments in the form of response sheets. Data analysis used quantitative and qualitative descriptive analysis. The design of the LKPD based on the STEM Approach was carried out using the ADDIE instructional development model, namely through the stages of Analysis, Development, Implementation, and Evaluation because in this model each stage was revised to get better LKPD products. The results showed that the design of the LKPD based on the STEM Approach based on the assessment of material experts obtained an average percentage of 94,64% with appropriate criteria, the assessment of learning experts obtained an average percentage of 75% with appropriate criteria, the design expert's assessment obtained an average percentage of 76,78% of the eligible criteria for the evaluation of Biology Study Teachers obtained an average percentage of 93,33% with a very feasible rating category, while the results of responses / responses from students obtained an average percentage of 95,82% with good assessment criteria. The results of the use of the LKPD Based on the STEM Approach designed to foster critical thinking skills obtained an average score of 82,57% with a total of 25 students completed. STEM-based LKPD on the material for Environmental Change that has been designed obtains "Very High" assessment criteria and has met the effective requirements used in fostering critical thinking skills and is suitable for use in the Biology learning process on environmental change material.

Keywords: *Worksheet, STEM, ADDIE, Critical Thinking*