

# **6th South East Asia Design Research International Conference 2018**

Inspiring Students to Learn: Fostering  
Innovative Teaching and Learning of  
Science, Mathematics and Technology

Journal of Physics: Conference Series  
Volume 1088

Banda Aceh, Indonesia  
27 – 28 June 2018

ISBN: 978-1-5108-7372-8  
ISSN: 1742-6588

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2018) by the Institute of Physics  
All rights reserved. The material featured in this book is subject to  
IOP copyright protection, unless otherwise indicated.

Printed by Curran Associates, Inc. (2018)

For permission requests, please contact the Institute of Physics  
at the address below.

Institute of Physics  
Dirac House, Temple Back  
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481  
Fax: 44 1 17 920 0979

[techtracking@iop.org](mailto:techtracking@iop.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

<b>THE EFFECTIVENESS OF STEM MENTORING PROGRAM IN PROMOTING INTEREST TOWARDS STEM</b> .....	1
<i>L Halim, T M T Soh, N M Arsad</i>	
<b>HOW DO WE LET STUDENTS WORK AS 'YOUNG MATHEMATICIANS' IN THE CLASSROOM?</b> .....	9
<i>M Dolk</i>	
<b>TEACHERS' COLLECTIVE KNOWLEDGE: THE CASE OF EQUIVALENT FRACTIONS</b> .....	15
<i>Z H Putra, C Winslōw</i>	
<b>DEVELOPING SPATIAL REASONING ACTIVITIES WITHIN GEOMETRY LEARNING</b> .....	21
<i>D W Winarti</i>	
<b>ANDROID BASED E-LEARNING TUTORIAL FOR MATHEMATICS TEACHERS</b> .....	28
<i>Y Roza, I Daqiqil, S N Siregar, S Salam, A Adnan</i>	
<b>THE APPLICATION OF R AND ARCGIS SOFTWARE AS A LEARNING MEDIA TO ESTIMATE THE RETURN PERIOD OF THE DESTRUCTIVE EARTHQUAKE IN ACEH AREAS USING MAXIMUM LIKELIHOOD METHOD</b> .....	34
<i>H Sofyan, Jumila, L Rahayu</i>	
<b>ENHANCING MANIPULATION OF ALGEBRAIC EQUATION THROUGH BALANCE METHOD</b> .....	42
<i>D N B Pg Badaruddin, K A Tengah, R C I Prahmana</i>	
<b>DESIGNING AN INTEGRATED LEARNING STRATEGY TO DEVELOP STUDENTS' AWARENESS OF RIVER ENVIRONMENT AND SCIENCE PROCESS SKILLS</b> .....	49
<i>A Winarti, Sarbain, M Yamin</i>	
<b>FORMATIVE ASSESSMENT IN SCIENCE EDUCATION: IS IT BEING PRACTICED?</b> .....	56
<i>M J B Espiritu, M Shahrill, J S H Q Perera, R C I Prahmana</i>	
<b>UNCERTAINTY AND DATA CONTENT IN BOWLING: TASK DESIGN</b> .....	62
<i>R Permatasari, R I I Putri, Zulkardi</i>	
<b>TEACHERS' REFLECTIONS ON STUDENTS' MATHEMATICAL PROBLEM SOLVING IN JUNIOR HIGH SCHOOL</b> .....	68
<i>Y Harisman, Y S Kusumah, K Kusnandi</i>	
<b>DEVELOPMENT OF LEARNING TOOL WITH CONTEXTUAL TEACHING AND LEARNING (CTL) APPROACH TO IMPROVE STUDENT MATHEMATICAL CONNECTION ABILITY</b> .....	76
<i>Mauliana, M Ikhsan, M Subianto</i>	
<b>LEARNING OF REPRODUCTION SYSTEM WITH AN INTEGRATIVE CURRICULUM APPROACH IN JUNIOR HIGH SCHOOL</b> .....	81
<i>Ibrahim, N Yusoff, M I Awang, Marwan</i>	
<b>ASSESSING THE VALIDITY AND RELIABILITY OF QUESTIONNAIRES ON THE IMPLEMENTATION OF INDONESIAN CURRICULUM K-13 IN STEM EDUCATION</b> .....	88
<i>R Oktavia, Irwandi, Rajibussalim, M Mentari, I S Mulia</i>	
<b>CHARACTERISING FORMATIVE ASSESSMENT PRACTICES IN THE MATHEMATICS CLASSES</b> .....	95
<i>J Low, M Shahrill, J S H Q Perera, R C I Prahmana</i>	
<b>DESIGN LEARNING IN MATHEMATICS EDUCATION: ENGAGING EARLY CHILDHOOD STUDENTS IN GEOMETRICAL ACTIVITIES TO ENHANCE GEOMETRY AND SPATIAL REASONING</b> .....	101
<i>R Novita, M Putra, E Rosayanti, F Fitriati</i>	
<b>ELEMENTARY STUDENTS' REPRESENTATIONS IN SOLVING WORD PROBLEMS</b> .....	107
<i>J T Manoy</i>	
<b>THE DEVELOPMENT OF LEARNING INSTRUMENTS USING THE CREATIVE PROBLEM-SOLVING LEARNING MODEL TO IMPROVE STUDENTS' CREATIVE THINKING SKILLS IN MATHEMATICS</b> .....	114
<i>D M Sari, M Ikhsan, Z Abidin</i>	
<b>PISA-LIKE MATHEMATICS PROBLEM: THE CONTEXT OF BASKETBALL IN ASIAN GAMES</b> .....	119
<i>R D Jannah, R I I Putri, Zulkardi</i>	
<b>THE STUDY OF THE MATHEMATICAL PROBLEM SOLVING AND METACOGNITION STRATEGY ON A PAIRED HANDEP COOPERATIVE LEARNING MODEL</b> .....	126
<i>Demitra, D Sulisworo</i>	

<b>INVESTIGATING STUDENTS' LEARNING TRAJECTORY: A CASE ON TRIANGLE</b> .....	133
<i>Anwar, I Rofiki</i>	
<b>A SELF-EVALUATION TECHNIQUE IN IMPROVING TEACHER'S PROFESSIONAL DEVELOPMENT: THE USE OF "REALIA" MEDIA AND "WAIT TIME" STRATEGIES</b> .....	139
<i>W Artika, M Saputri</i>	
<b>LEARNING FRACTION THROUGH THE CONTEXT OF ASIAN GAMES 2018</b> .....	145
<i>R I I Putri, Zulkardi</i>	
<b>THE TEACHING AND LEARNING OF ADDITION AND SUBTRACTION OF INTEGERS THROUGH MANIPULATIVE IN BRUNEI DARUSSALAM</b> .....	153
<i>N Sahat, K A Tengah, R C I Prahmana</i>	
<b>THE EFFECTIVENESS OF AN AUTOGRAPH-ASSISTED PROBLEM BASED LEARNING MODEL FOR IMPROVING HIGH SCHOOL STUDENTS' LEARNING OUTCOME ON GRAPHICS FUNCTIONS</b> .....	160
<i>M Ridha, R Johar, Marwan, Mailizar</i>	
<b>DILEMMATIC SITUATIONS FOR LEARNING MATHEMATICS-RELATED BELIEFS</b> .....	166
<i>T Y E Siswono, A W Kohar, S Hartono, A H Rosyidi, P Wijayanti, R Ekawati</i>	
<b>STUDENTS' COLLABORATIVE ABILITY IN LEARNING GEOMETRY TRANSFORMATION USING A SCIENTIFIC APPROACH BASED ON LEARNING COMMUNITY</b> .....	174
<i>Hobri, J Safitri, S Romlah, E Nazareth, Susanto</i>	
<b>REALISTIC MATHEMATICS LEARNING BASED ON THE ETHNOMATHEMATICS IN BENGKULU TO IMPROVE STUDENTS' COGNITIVE LEVEL</b> .....	182
<i>W Widada, D Herawaty, A N M T Lubis</i>	
<b>DESIGNING STUDENT WORKSHEET FOR RICH MATHEMATICAL TASKS</b> .....	190
<i>F Fitriati, R Novita</i>	
<b>THE DEVELOPMENT OF LEARNING INSTRUMENTS THROUGH THE PROBLEM-BASED LEARNING MODEL TO ENHANCE STUDENTS' CREATIVITY</b> .....	197
<i>M Iqbal, Yusrizal, Z Abidin</i>	
<b>ANALYSIS OF STUDENTS' ERRORS IN RESPONDING TO TIMSS DOMAIN ALGEBRA PROBLEM</b> .....	203
<i>B A Saputro, D Suryadi, R Rosjanuardi, B G Kartasasmita</i>	
<b>TEACHING AND LEARNING STATISTICS IN COLLEGE: HOW LEARNING MATERIALS SHOULD BE DESIGNED</b> .....	210
<i>K Idris</i>	
<b>THE DEVELOPMENT OF MATHEMATICS STUDENT WORKSHEET FOR SCHOOL LITERACY MOVEMENT</b> .....	215
<i>K N S Effendi, Zulkardi, R I I Putri, P Yaniawati</i>	
<b>APPLICATION OF MICROSOFT EXCEL AS AN INTERACTIVE LEARNING MEDIA OF ACID-BASE TITRATION</b> .....	222
<i>I Khaldun, M Hasan, Nilawati</i>	
<b>TEACHERS' USE OF LEARNING RESOURCES IN SPATIAL LEARNING</b> .....	229
<i>C Khairunnisak, E Elizar, R Johar, T P Utami</i>	
<b>THE VALIDITY OF VECTOR ANALYSIS MODULE USING Wxmaxima SOFTWARE</b> .....	237
<i>Khairina, M Ikhsan, Suhartati</i>	
<b>DIFFICULTIES ANALYSIS OF MATHEMATICS EDUCATION STUDENTS ON THE REAL ANALYSIS SUBJECT</b> .....	243
<i>I Widiati, A Sthephani</i>	
<b>THE DEVELOPMENT OF LEARNING INSTRUMENTS BASED ON AN OPEN-ENDED APPROACH TO IMPROVE STUDENTS' PROBLEM-SOLVING SKILL</b> .....	248
<i>N R Fandamu, M Ikhsan, Bahrin</i>	
<b>THE DEVELOPMENT OF LEARNING MATERIALS USING CONTEXTUAL TEACHING LEARNING (CTL) APPROACH ORIENTED ON THE CHARACTER EDUCATION</b> .....	254
<i>R Johar, Agussalim, M Ikhsan, B Zaura</i>	
<b>DEVELOPING LEARNING TRAJECTORY FOR TEACHING STATISTICS AT JUNIOR HIGH SCHOOL USING RME APPROACH</b> .....	260
<i>A Fauzan, E Musdi, J Afriadi</i>	
<b>THE INTEGRATION OF SCIENCE AND MATH</b> .....	267
<i>Y Fitria, Y Helsa, H Nirwana, A P Zulkarnaini</i>	
<b>THE PRACTICALITY OF THE QUADRATIC FUNCTION MODULE BY UTILIZING AUTOGRAPH SOFTWARE AND ANGRY BIRDS GAME</b> .....	273
<i>C M Zubainur, Suhartati, Iwannitona</i>	
<b>DEVELOPMENT OF ALGEBRA TEST QUESTIONS BASED ON BLOOM'S TAXONOMY</b> .....	280
<i>M Husna, R Johar, Hajidin, Mailizar</i>	

<b>DEVELOPING LTBI FOR ADDITION AND MULTIPLICATION RULES IN PROBABILITY THEORY WITH REALISTIC MATHEMATICS EDUCATION .....</b>	<b>287</b>
<i>H Julie</i>	
<b>DEVELOPING A PHYSICS MODULE BASED ON THE LOCAL WISDOM OF HULU SUNGAI TENGAH REGENCY TO TRAIN THE MURAKATA CHARACTER .....</b>	<b>294</b>
<i>S Hartini, M F Isnanda, M Wati, M Misbah, S An'nur, S Mahtari</i>	
<b>THE DEVELOPMENT OF LEARNING RESOURCES THROUGH BENTHIC SPECIES STUDY IN MANGROVE ECOSYSTEM REULEUNG LEUPUNG FOR INVERTEBRATE ZOOLOGY LEARNING .....</b>	<b>300</b>
<i>M Ali S, Supriyatno, M D Asiah, M Saputri, A Mursawal, Zulfikar</i>	
<b>PISA-LIKE MATHEMATICS PROBLEMS USING THE CONTEXT OF ATHLETICS IN ASIAN GAMES 2018 .....</b>	<b>308</b>
<i>I Pratiwi, R I I Putri, Zulkardi</i>	
<b>LEARNING DIRECT PROPORTION BY USING THE CONTEXT OF TIMPAN RECIPES .....</b>	<b>315</b>
<i>S F Zuhra, C M Zubainur, T F Abidin</i>	
<b>DEVELOPING MATHEMATICS TEACHING TOOL USING ELPSA.....</b>	<b>321</b>
<i>E Gradini, F Bahri</i>	
<b>THE EFFECTIVENESS OF LEARNING INSTRUMENTS ON THE TOPIC OF THE SET USING PROBLEM-BASED LEARNING MODEL AT ISLAMIC JUNIOR HIGH SCHOOL IN PEKANBARU .....</b>	<b>328</b>
<i>Sakur, A Murni, R D Anggraini</i>	
<b>THE TEACHER'S MATHEMATICAL LITERACY FOR THE CHANGE AND RELATIONSHIP PROBLEMS ON THE PISA ADAPTATION TEST .....</b>	<b>334</b>
<i>A Y Anggoro, H Julie, F Sanjaya, M A Rudhito</i>	
<b>JUNIOR HIGH SCHOOL MATHEMATICS TEACHERS' PEDAGOGICAL CONTENT KNOWLEDGE IN TEACHING OF POLYHEDRA.....</b>	<b>341</b>
<i>Ma'rufi, M Ilyas, Salwah</i>	
<b>THE EFFECT OF CREATIVE PROBLEM-SOLVING LEARNING MODEL USING GEOMETRY TRANSFORMATION BOOK BASED ON AL-QUR'AN ON STUDENTS' VAN HIELE THINKING LEVEL AND LEARNING OUTCOME.....</b>	<b>347</b>
<i>F Kristanti, C Ainy, S Shoffa</i>	
<b>GENDER DIFFERENCES OF MATHEMATICAL CRITICAL THINKING SKILLS OF SECONDARY SCHOOL STUDENTS .....</b>	<b>354</b>
<i>Mawaddah, A Ahmad, M Duskri</i>	
<b>ETHNOMATHEMATICS ANALYSIS ON JAMBI PLAIT ART AS THE MATHEMATICS LEARNING RESOURCES .....</b>	<b>360</b>
<i>Kamid, A Wandari, Rohati</i>	
<b>THE FEASIBILITY OF AN ANDROID-BASED POCKETBOOK AS MATHEMATICS LEARNING MEDIA IN SENIOR HIGH SCHOOL .....</b>	<b>365</b>
<i>M Saputra, T F Abidin, B I Ansari, M Hidayat</i>	
<b>INTEGRATED MODEL IN SCIENCE FOR ELEMENTARY SCHOOL.....</b>	<b>371</b>
<i>R Amini, Usmeldi, Y Helsa</i>	
<b>STUDENTS' PERCEPTIONS ON THE IMPLEMENTATION OF E-LEARNING: HELPFUL OR UNHELPFUL?.....</b>	<b>376</b>
<i>L Vitoria, M Mislinawati, N Nurmasiyah</i>	
<b>THE DEVELOPMENT OF AN INSTRUMENT TO EXPLORE NON-ROUTINE PROBLEM SOLVING STRATEGIES AMONG MATHEMATICS EDUCATION STUDENTS .....</b>	<b>382</b>
<i>R M Bambang S, R Salasi, M Hasbi, MZ Mardhiah</i>	
<b>LIGHT EMITTING DIODE (LED) AS AN ESSENTIAL PROP COMPONENT FOR STEM EDUCATION IN THE 21ST CENTURY: A FOCUS FOR SECONDARY SCHOOL LEVEL.....</b>	<b>389</b>
<i>Irwandi, R Oktavia, Rajibussalim, A Halim, Melvina</i>	
<b>THE ETHNOMATHEMATICS: EXPLORATION OF GAYO TRIBE LOCAL WISDOM RELATED TO MATHEMATICS EDUCATION .....</b>	<b>395</b>
<i>B Yustinaningrum, Nurliana, E Rahmadhani</i>	
<b>THE DEVELOPMENT OF TEACHING MATERIAL: RIGOROUS MATHEMATICAL THINKING IN A GEOMETRY CLASSROOM .....</b>	<b>401</b>
<i>M Meilantifa, M T Budiarto</i>	
<b>PISA-LIKE MATHEMATICS PROBLEM WITH KARATE CONTEXT IN ASIAN GAMES .....</b>	<b>406</b>
<i>H Nizar, R I I Putri, Zulkardi</i>	
<b>STUDENTS' METACOGNITIVE ABILITY IN MATHEMATICAL PROBLEM-SOLVING LEARNING BASED ON LESSON STUDY FOR LEARNING COMMUNITY (LSLC).....</b>	<b>413</b>
<i>Hobri, S Romlah, A C Prihandoko, J Safitri, E Nazareth</i>	

<b>THE IMPACT OF USING LINE@ ON THE COOPERATIVE LEARNING TO IMPROVE THE CRITICAL THINKING SKILLS OF HIGH SCHOOL STUDENTS .....</b>	<b>421</b>
<i>D Sulisworo, S Daimah, M Toifur, A Suryadi</i>	
<b>THE TEACHERS' MATHEMATICS LITERACY ABILITY FOR SOLVING UNCERTAINTY PROBLEMS ON A PISA ADAPTATION TEST .....</b>	<b>428</b>
<i>F Sanjaya, A Y Anggoro, H Julie, M A Rudhito</i>	
<b>STUDENTS' CREATIVE THINKING ABILITY IN LEARNING MATHEMATICS THROUGH LEARNING MODEL OF LOGAN AVENUE PROBLEM SOLVING (LAPS) – HEURISTIC .....</b>	<b>434</b>
<i>U Husna, C M Zubainur, B I Ansari</i>	
<b>THE IMPROVEMENT OF MATHEMATICS TEACHERS' PEDAGOGICAL CONTENT KNOWLEDGE (PCK) THROUGH MENTORING .....</b>	<b>440</b>
<i>T Zubaidah, R Johar, Suparno</i>	
<b>CARTOGRAPHY IN DESIGNING DIGITAL MAP USING ADOBE FLASH CS6.....</b>	<b>447</b>
<i>Y Miaz, Y Helsa, Desyandri, R Febrianto</i>	
<b>DIFFERENCES IN STUDENTS' LEARNING OUTCOMES BETWEEN DISCOVERY LEARNING AND CONVENTIONAL LEARNING MODELS .....</b>	<b>454</b>
<i>R D Anggraini, A Murni, Sakur</i>	
<b>STUDENTS' ABSTRACTION IN SOLVING SYSTEM OF LINEAR EQUATIONS WITH TWO VARIABLES.....</b>	<b>459</b>
<i>F Pangaribuan</i>	
<b>STUDENTS' ABILITY TO CONVERT A SITUATION INTO A MATHEMATICAL MODEL OR DIAGRAM USING PROBLEM SOLVING APPROACH.....</b>	<b>465</b>
<i>H Arianti, C M Zubainur, Hizir</i>	
<b>INTEGRATING TECHNOLOGY AND MEDIA INTO MATHEMATICS LEARNING .....</b>	<b>471</b>
<i>U Rahmi, Y Helsa, Azrul</i>	
<b>THE DEVELOPMENT OF STUDENT WORKSHEET BY USING DISCOVERY-BASED APPROACH: A CASE STUDY IN LEARNING MEDIA COURSE.....</b>	<b>475</b>
<i>E B Rahaju, P Wijayanti</i>	
<b>GENERATIVE LEARNING MODEL TO IMPROVE MATHEMATICS PROBLEM SOLVING SKILLS ON POLYHEDRON .....</b>	<b>480</b>
<i>Andriani, M Ikhsan, S Munzir, C Khairunnisak</i>	
<b>THE ANALYSIS OF JUNIOR HIGH SCHOOL STUDENTS' MATHEMATICAL ABSTRACTION ABILITY BASED ON LOCAL CULTURAL WISDOM.....</b>	<b>486</b>
<i>I Dewi, N Siregar, A Andriani</i>	
<b>THE QUALITY OF LEARNING MATERIALS THROUGH MATHEMATICS REASLITIC TO IMPROVE STUDENTS' MATHEMATICAL COMMUNICATION ABILITY IN THE ELEMENTARY SCHOOL.....</b>	<b>492</b>
<i>Nurfadhillah, R Johar, A Ahmad</i>	
<b>DESIGNING TEACHING INSTRUCTIONS CATERING STUDENTS' NEEDS: TEACHING SOLID GEOMETRY THROUGH PROBLEM-BASED LEARNING (PBL).....</b>	<b>498</b>
<i>K Umam, S Maulina</i>	
<b>CALISTUNG LITERACY THROUGH THE APPLICATION OF LECTORA .....</b>	<b>504</b>
<i>Masniladevi, Ritawati, Yullys Helsa</i>	
<b>THE VALIDITY TEST OF THE LESSON PLAN TO REDUCE STUDENTS' MISCONCEPTIONS USING THE COGNITIVE CONFLICT STRATEGY .....</b>	<b>508</b>
<i>D Fitri, R Johar, A Ahmad</i>	
<b>THE USE OF CIPP MODEL FOR EVALUATION OF COMPUTATIONAL ALGORITHM LEARNING PROGRAM.....</b>	<b>514</b>
<i>S J Hartati, N Sayidah, Muhajir</i>	
<b>ANALYSIS OF SENIOR HIGH SCHOOL STUDENTS' EMOTIONAL INTELLIGENCE IN COOPERATIVE BASED MATHEMATICS LEARNING .....</b>	<b>520</b>
<i>M Ilyas, M Ma'rufi, F Fitriani, S Salwah</i>	
<b>FAUZI'S COGNITIVE CONFLICT IN THE DEVELOPMENT OF GEOMETRY TEACHING MATERIAL: A CASE STUDY IN SHIFTING TRAPEZOIDAL DEFINITION.....</b>	<b>525</b>
<i>M T Budiarto</i>	
<b>COGNITIVE CONFLICT STRATEGY TO MINIMIZE STUDENTS' MISCONCEPTION ON THE TOPIC OF ADDITION OF ALGEBRAIC EXPRESSION .....</b>	<b>531</b>
<i>Irawati, C M Zubainur, R M Ali</i>	
<b>DEEPENING STUDENTS UNDERSTANDING OF TRIANGLE TOPIC THROUGH 'APPLICATION' COMPONENT OF ELPISA (EXPERIENCE, LANGUAGE, PICTORIAL, SYMBOL AND APPLICATION) FRAMEWORK.....</b>	<b>537</b>
<i>B R A Febrilia, D W Winarti</i>	

<b>MATHEMATICAL PROBLEMS OF PISA-LIKE WITH THE 200M SWIMMING CONTEXTS IN ASIAN GAMES .....</b>	<b>543</b>
<i>D Yansen, R I I Putri, Zulkardi</i>	
<b>DESIGNING LEARNING ACTIVITIES ON CONDITIONAL PROBABILITY .....</b>	<b>549</b>
<i>Benidiktus Tanujaya, Rully Charitas Indra Prahmana, Jinne Mumu</i>	
<b>THE USE OF THE WXMAXIMA LINEAR ALGEBRA MODULE ON GAUSS ELIMINATION LESSON FOR MATHEMATICS EDUCATION STUDENTS .....</b>	<b>555</b>
<i>D Afriza, C M Zubainur, A Veloo</i>	
<b>STUDENTS' METACOGNITION ON MATHEMATICAL PROBLEM SOLVING THROUGH ETHNOMATHEMATICS IN REJANG LEBONG, INDONESIA .....</b>	<b>562</b>
<i>D Herawaty, W Widada, T Novita, L Waroka, A N M T Lubis</i>	
<b>DEVELOPMENT OF LEARNING TOOLS USING TREFFINGER LEARNING MODEL TO IMPROVE CREATIVE THINKING .....</b>	<b>568</b>
<i>R Handayani, Hajidin, M Duskri, E Maidiyah</i>	
<b>DEVELOPING WORKSHEETS THROUGH ISLE-BASED STEM APPROACH AND IMPLEMENTING THEM ON SENIOR HIGH SCHOOL STUDENTS .....</b>	<b>575</b>
<i>E Rahmayani, I Irwandi, R Rajibussalim</i>	
<b>ASSESSING CONCEPTUAL AND ALGORITHMIC UNDERSTANDING OF STUDENTS IN SENIOR HIGH SCHOOL .....</b>	<b>583</b>
<i>Nuzulia, M Hasan, A Ismayani</i>	
<b>THE DEVELOPMENT OF MATHEMATICS HIGHER ORDER THINKING SKILLS INSTRUMENT FOR GRADE VIII JUNIOR HIGH SCHOOL .....</b>	<b>588</b>
<i>Y Yunita, W Wahidin, A Tsurayya</i>	
<b>THE REFLECTIVE ABSTRACTION PROFILE OF JUNIOR HIGH SCHOOL STUDENTS IN SOLVING MATHEMATICAL PROBLEMS BASED ON COGNITIVE STYLE OF FIELD INDEPENDENT AND FIELD DEPENDENT .....</b>	<b>594</b>
<i>B Panjaitan</i>	
<b>MATHEMATICS LEARNING THROUGH PENDIDIKAN MATEMATIKA REALISTIK INDONESIA (PMRI) APPROACH AND ADOBE FLASH CS6 .....</b>	<b>599</b>
<i>M Zainil, Y Helsa, Y Zainil, W T Yanti</i>	
<b>DESIGNING LEARNING TRAJECTORY FOR TEACHING SEQUENCE AND SERIES USING RME APPROACH TO IMPROVE STUDENTS' PROBLEM SOLVING ABILITIES .....</b>	<b>604</b>
<i>E Gee, A Fauzan, A Atmazaki</i>	
<b>THE QUALITY OF MATHEMATICS LEARNING MATERIAL USING A MODIFICATION OF THINK PAIR SHARE (TPS) MODEL .....</b>	<b>610</b>
<i>Maisyura, C M Zubainur, T F Abidin</i>	
<b>STUDENT'S UNDERSTANDING OF NUMBERS THROUGH THE NUMBER SENSE STRATEGY .....</b>	<b>616</b>
<i>N F Helmy, R Johar, Z Abidin</i>	
<b>PATTERNS PLAYING FOR EARLY CHILDHOOD EDUCATION: MATHEMATICS LEARNING FOR EARLY CHILDHOOD EDUCATION.....</b>	<b>622</b>
<i>Y Yuhasriati, A Yuriansa</i>	
<b>TEACHERS' ACTIVITIES DURING DESIGNING HIGHER-ORDER THINKING SKILLS (HOTS) MATHEMATICAL QUESTIONS THROUGH TEACHER ASSISTING PROGRAM .....</b>	<b>627</b>
<i>Wahyuni, R Johar, M Duskri</i>	
<b>THE DEVELOPMENT OF ALGEBRA TEACHING MATERIALS TO FOSTER STUDENTS' CREATIVE THINKING SKILLS IN HIGHER EDUCATION .....</b>	<b>634</b>
<i>M Mursalin, N L S Nuraini, H Purnomo, N W Damayanti, D Kristanti, A Rohim, R Widyastuti, Y O Wulandari, H Saleh, S N Mayangsari, M Fonna, R Rohantizani, I Muhammad, H Nufus, R Sulastri, R Amalia, N Nuraina, M Muliana</i>	
<b>EFFECTIVENESS OF THE DEVELOPMENT OF THE INQUIRY-BASED LEARNING MODEL TO IMPROVE STUDENTS' PSYCHOMOTOR ACHIEVEMENT .....</b>	<b>640</b>
<i>R A Siregar</i>	
<b>DEVELOPING MATHEMATICS TRAINING MODULES TO ENHANCE TEACHERS' CONTENT KNOWLEDGE.....</b>	<b>645</b>
<i>R Sulastri, R Johar, M Duskri, M Ikhsan, H Meutia</i>	
<b>STUDENT'S REPRESENTATION OF FRACTION THROUGH ELPSA FRAMEWORK .....</b>	<b>652</b>
<i>E Juliangkary, R Johar</i>	
<b>IMPROVING STUDENTS' HIGHER ORDER THINKING SKILLS IN THERMOCHEMISTRY CONCEPT USING WORKSHEETS BASED ON 2013 CURRICULUM .....</b>	<b>660</b>
<i>R Verdina, A Gani, Sulastri</i>	

<b>THE EFFECTIVENESS OF GUIDED INQUIRY-BASED STUDENT WORKSHEETS ON STUDENTS' GENERIC SCIENCE SKILLS</b> .....	666
<i>M Faradilla, M Hasan, Sulastri</i>	
<b>THE ASSOCIATION BETWEEN CONCEPTUAL UNDERSTANDING AND REASONING ABILITY IN MATHEMATICS: AN ANALYSIS OF DNR-BASED INSTRUCTION MODELS</b> .....	672
<i>MT Bakar, D Suryadi, Darhim, W S Tonra, M S Noto</i>	
<b>STUDENTS' UNDERSTANDING OF CHARTS: THE STUDY OF PISA'S PROBLEM-SOLVING IN THE CONTENT OF DATA</b> .....	677
<i>I K Sari, A Nasriadi, M Salmina</i>	
<b>QUESTIONING SKILL OF SCIENCE TEACHER FROM THE STUDENTS PERSPECTIVE IN SENIOR HIGH SCHOOL</b> .....	683
<i>A Halim, Yusrizal, H Mazlina, Melvina, Zainaton</i>	
<b>DESIGNING COMPUTER-BASED FRACTION WORKSHEETS FOR JUNIOR HIGH SCHOOL</b> .....	689
<i>R Amalia, S Saiman, S Sofiyan, M Mursalin</i>	
<b>THE POTENTIAL OF JANGKA BEACHES AS A NATURAL LABORATORY FOR LEARNING THE CONCEPT OF BIODIVERSITY</b> .....	696
<i>A Abdullah, L Fitriana, M Ali Sarong, C Nurmaliah</i>	
<b>STEM LEARNING IN REGULAR AND VOCATIONAL HIGH SCHOOLS ON THE TOPIC OF SCIENTIFIC MENU CARD FABRICATION</b> .....	702
<i>R P Sari, M Adlim, A Gani</i>	
<b>VALIDATION OF PROTOTYPE INSTRUMENTS FOR IMPLEMENTING HIGHER ORDER THINKING LEARNING USING THE IMPROVE METHOD</b> .....	708
<i>BI Ansari, Saminan, R Sulastri</i>	
<b>DEVELOPING GUIDED-INQUIRY-STUDENT WORKSHEETS TO IMPROVE THE SCIENCE PROCESS SKILLS OF HIGH SCHOOL STUDENTS ON THE HEAT CONCEPT</b> .....	714
<i>M Mahyuna, M Adlim, I Saminan</i>	
<b>CHARACTERISTICS OF PRE-SERVICE TEACHERS' PERFORMANCE IN PROBLEM POSING</b> .....	719
<i>M Masriyah, I Kurniasari, E L W Palupi</i>	
<b>STUDENTS' THINKING PROCESS IN SOLVING MATHEMATICAL PROBLEMS BASED ON THE LEVELS OF MATHEMATICAL ABILITY</b> .....	724
<i>A Sanjaya, R Johar, M Ikhsan, L Khairi</i>	
<b>DESIGNING PISA-LIKE MATHEMATICS PROBLEMS USING THE CONTEXT OF KARAWANG</b> .....	730
<i>I N Aini, Zulkardi, R I I Putri, Turmudi</i>	
<b>OPTIMALIZATION OF STUDENT'S LEARNING OUTCOMES AND LEARNING ACTIVITIES IN PHYSICS USING OPEN ENDED MODEL</b> .....	735
<i>A Hamid, Nofiza</i>	
<b>THE DEVELOPMENT OF A MODULE WITH MICROSOFT EXCEL-BASED INTERACTIVE MEDIA ON THE TOPIC OF BUFFER SOLUTION</b> .....	740
<i>Anizar, A Gani, I Khaldun, M Bahi</i>	
<b>THE DEVELOPMENT OF STUDENT WORKSHEETS BASED ON METACOGNITIVE APPROACH TO IMPROVE STUDENTS' MATHEMATICAL REPRESENTATION ABILITY</b> .....	746
<i>A Murni, R D Anggraini, Sakur</i>	
<b>Author Index</b>	