

**505-3-.69 K – 5 SCIENCE ENDORSEMENT PROGRAM**

**Nature of Amendment(s):**

- Substantive**
- Clarification**
- Further Definition**

**Discussion:**

This proposed new rule replaces rule 505-3-.68 EARLY CHILDHOOD SCIENCE ENDORSEMENT PROGRAM, which is being repealed. This new rule, which has the same number but a new title and all new content, addresses the intent of HB 280. Specifically, this new rule describes endorsement program requirements and content standards designed to enhance the competency levels of educators who teach science to children in grades K through 5. It also requires endorsement programs to include a process for holders of the previous Early Childhood Science Endorsement to add the new K-5 Science Endorsement without repeating the full endorsement program.

**(1) Purpose.**

(a) This rule describes requirements and field-specific content standards for approving endorsement programs that prepare science specialists for teaching students in grades K-5 and supplements requirements in Rule 505-3-.01, Requirements and Standards for Approving Professional Education Units and Educator Preparation Programs.

(b) This endorsement program is optional and is designed to strengthen and enhance educator competency levels. Individuals teaching science in grades K-5 who hold a Clear Renewable certificate and this endorsement will be eligible to earn salary incentives when funded by the General Assembly. The endorsement applies to educators teaching within grades K-5 but it does not modify the grade levels of the base certificate. For example, educators with the Middle Grades Science (4-8) certificate and this K-5 endorsement are only in-field to teach science in grades 4-8. They will be eligible for salary incentives only if they are assigned to teach science in grades 4 or 5.

(c) Individuals with the following certificates will be eligible for pay incentives if they are assigned to teach science in the grade levels defined below:

1. Early Childhood Education (P-5) certificate holders will be eligible to earn pay incentives if they are assigned to teach science to children in grades K-5.

2. Middle Grades Science (4-8) certificate holders will be eligible to earn pay incentives if they are assigned to teach science to children in grades 4-5.

3. Special Education General Curriculum/Early Childhood Education (P-5) certificate holders will be eligible to earn pay incentives if they are assigned to teach science to children in grades K-5.

4. Educators holding the following certificates and a core academic content concentration in science will be eligible to earn pay incentives if they are assigned to teach science to children in grades K-5:

(i) Special Education General Curriculum (P-12)

(ii) Special Education Adapted Curriculum (P-12)

- (iii) Special Education Behavior Disorders (P-12)
- (iv) Special Education Learning Disabilities (P-12)
- (v) Special Education Deaf Education (P-12)
- (vi) Special Education Physical and Health Disabilities (P-12)
- (vii) Special Education Visual Impairment (P-12)
- (viii) Gifted Education (P-12)

**(2) Requirements.**

(a) To be eligible to enroll in this endorsement program, the educator must have:

1. a Clear Renewable teaching certificate, level 4 or higher, in one of the following fields:

- (i) Early Childhood Education (P-5);
- (ii) Middle Grades Science (4-8);
- (iii) Special Education General Curriculum / Early Childhood Education (P-5); or

(iv) any of the following certificates combined with a core academic content concentration in Science:

- (I) Special Education General Curriculum (P-12);
- (II) Special Education Adapted Curriculum (P-12);
- (III) Special Education Behavior Disorders (P-12);
- (IV) Special Education Learning Disabilities (P-12);
- (V) Special Education Deaf Education (P-12);
- (VI) Special Education Physical and Health Disabilities (P-12);
- (VII) Special Education Visual Impairment (P-12); or
- (VIII) Gifted Certificate (P-12); and

2. a minimum of one year of teaching experience.

(b) The program may be offered only by a GaPSC-approved professional education unit.

(c) The program shall be offered as a post-baccalaureate endorsement and may not be embedded in an initial preparation program.

(d) The program shall require candidates to complete an authentic residency. An authentic residency is defined as a supervised and coordinated series of real applications of knowledge and skills occurring in actual classroom settings that allow candidates to further develop and

demonstrate the knowledge and skills acquired in coursework. Residency experiences shall require demonstration of the content knowledge and pedagogical skills delineated in program content standards. Authentic residency experiences shall occur in candidates' assigned classrooms, as well as in settings other than candidates' assigned classrooms to ensure experiences with diverse students and with students in the grade levels of the candidate's base certificate. The authentic residency must include a portfolio component.

(e) Prior to the creation of this rule a certificate known as the Early Childhood Science Endorsement was available. Those holding the Early Childhood Science Endorsement issued prior to June 30, 2010 may keep the endorsement; however, it will not result in eligibility for salary incentives. The K-5 Science Endorsement program shall include a process by which educators holding the Early Childhood Science Endorsement may add the K-5 Science Endorsement and thereby become eligible to earn salary incentives without repeating the full endorsement program. The process shall include but not be limited to the submission of a portfolio which will be assessed by the program provider. Based on the assessment of the portfolio, the program provider may prescribe coursework or performance-based assessments as necessary to ensure that all standards and requirements herein are met before recommending the candidate for the K-5 Science Endorsement.

(f) The portfolio shall include but not be limited to: evidence of observations by supervisors, student work samples, student work samples with analysis, self-reflection, and evidence of the effective use of technology to assist in student learning.

(g) The preparation program described in program planning forms, catalogs, and syllabi shall require a minimum of three courses of which two courses shall be focused on the advancement of content knowledge and one course shall be focused on content-specific pedagogy and proven strategies that address the following standards:

1. The program shall prepare candidates who structure and interpret concepts, ideas and relationships in science at a level appropriate to K-5 students.

(i) The program shall prepare candidates who understand the major concepts and principles of the science disciplines (life, physical, and earth and space) and interdisciplinary science perspectives as defined by the National Science Education Standards at a K-8 level.

(l) In relation to the life sciences, candidates shall understand

I. Characteristics of organisms.

II. Life cycles of organisms.

III. Organisms and environments.

IV. Structure and function in living systems.

V. Reproduction and heredity.

VI. Regulation and behavior.

VII. Populations and ecosystems.

VIII. Diversity and adaptations of organisms.

(ll) In relation to the physical sciences, candidates shall understand

- I. Properties of objects and materials.
- II. Position and motion of objects.
- III. Light, heat, electricity, and magnetism.
- IV. Properties and changes of properties in matter.
- V. Motions and forces.
- VI. Transfer of energy.

(III) In relation to the Earth and space sciences, candidates shall understand:

- I. Properties of earth materials.
- II. Objects in the sky.
- III. Changes in earth and sky.
- IV. Structure of the earth system.
- V. Earth's history.
- VI. Earth in the solar system.

(ii) The program shall prepare candidates who understand the major concepts and principles unifying the science disciplines.

- (I) Systems, order, and organization.
- (II) Evidence, models, and explanation.
- (III) Constancy, change, and measurement.
- (IV) Evolution and equilibrium.
- (V) Form and function.

2. The program shall prepare candidates who are able to engage K-5 students regularly and effectively in science inquiry and who understand the role inquiry plays in the development of scientific knowledge.

(i) The program shall prepare candidates who understand scientific inquiry and its relationship to the development of scientific knowledge.

(ii) The program shall prepare candidates who engage K-5 students effectively in scientific inquiry appropriate for their grade level and abilities.

(iii) The program shall prepare candidates who understand how to engage K-5 students effectively in studies of the nature of science and conventions of scientific explanations.

3. The program shall prepare candidates who relate science to the daily lives and interests of students and to a larger framework of human endeavor and understanding.

(i) The program shall prepare candidates who understand the relationship of science to other human values and endeavors and can effectively engage K-5 students in this relationship.

(ii) The program shall prepare candidates who relate science to the personal lives, needs, and interests of K-5 students.

4. The program shall prepare candidates who are able to engage a diverse community of student learners in activities.

(i) The program shall prepare candidates who use diverse and effective actions, strategies, and methodologies to teach science.

(ii) The program shall prepare candidates who interact effectively with K-5 students to promote learning and demonstrate student achievement.

(iii) The program shall prepare candidates who organize and manage science activities effectively in different student groupings.

(iv) The program shall prepare candidates who use appropriate technology to teach K-5 students science.

(v) The program shall prepare candidates who use prior conceptions and K-5 student interests to promote learning.

5. The program shall prepare candidates who understand the relationships of science to society and the community and use human and institutional resources to advance the science education of their students.

(i) The program shall prepare candidates who understand the values and needs of the community and their effect on science teaching and learning.

(ii) The program shall prepare candidates who use community human and institutional resources to advance science learning in the classroom and field.

(iii) The program shall prepare candidates who relate science to the personal lives, needs, and interests of K-5 students.

(iv) The program shall prepare candidates who understand science as a human endeavor.

6. The program shall prepare candidates who use a variety of contemporary science formative and summative assessments to determine, guide, and inform science instruction that meets the needs of K-5 students.

7. The program shall prepare candidates who create and maintain a psychologically, socially, and ethically safe and supportive learning environment that conforms to the National Science Teachers Association's National Science Safety Standards.

8. The program shall prepare candidates through authentic experiences who participate in the professional community and improve practices through their personal actions, education, and development.

Authority O.C.G.A. § 20-2-200