

Checking the Numbers – Scoring Sheet

Student Name: _____

Place a score (1-4) in each row corresponding to the student's college readiness level.

Exceeding College Ready (4): Substantially exceeds the performance expectations**College Ready (3):** Shows proficiency in all of the performance expectations**Approaching College Ready (2):** Meets only some of the performance expectations**Initiating College Ready (1):** Does not yet meet the performance expectations

KEY COGNITIVE SKILLS	Student's Self-Assessment	Instructor's Score
Intellectual Curiosity (engages in scholarly inquiry and dialogue)		
Reasoning (constructs well-reasoned arguments to explain phenomena, validate conjectures, or support positions; gathers evidence to support arguments, findings, or lines of reasoning)		
Problem Solving (develops and applies multiple strategies to solve problems)		
Academic Behaviors (self-monitors learning needs and seeks assistance when needed; uses study habits necessary to manage academic pursuits and requirements; strives for accuracy and precision; perseveres to complete and master tasks)		
Work Habits (works independently)		
FOUNDATIONAL SKILLS	Student's Self-Assessment	Instructor's Score
Writing Across the Curriculum (writes clearly and coherently using standard writing conventions)		
Use of Data (identifies patterns or departures from patterns among data; presents analyzed data and communicates findings in a variety of formats)		
MATHEMATICS STANDARDS	Student's Self-Assessment	Instructor's Score
Numeric Reasoning (compares real numbers; uses estimation to check for errors and reasonableness of solutions)		
Algebraic Reasoning (recognizes and uses algebraic properties, concepts, procedures, and algorithms to combine, transform, and evaluate expressions)		
Problem Solving and Reasoning (analyzes given information; formulates a plan or strategy; determines a solution; justifies the solution)		
Communication and Representation (uses mathematical symbols, terminology, and notation to represent given and unknown information in a problem; uses mathematics as a language for reasoning, problem solving, making connections, and generalizing)		
Connections (connects mathematics to the study of other disciplines)		

See reverse for
comments.

Score	College Readiness Level
42-48	Exceeding College Ready
35-41	College Ready
18-34	Approaching College Ready
0-17	Initiating College Ready

Total Score: _____

Grade: _____

See Scoring Guide for grade
conversion chart.

Checking the Numbers – Scoring Guide

Note: The letters and numbers of the skills below refer to their designation in the College and Career Readiness Standards.

KEY COGNITIVE SKILLS

A. Intellectual Curiosity

1. Engage in scholarly inquiry and dialogue.

College Ready Description: Student demonstrates a clear understanding of the problem by applying the weights correctly to the digits of the identification numbers and by carefully analyzing the given errors and the alternative sets of weights.

Evidence for Scoring: Student computes the correct check digits for the given ISBN and UPC codes.

B. Reasoning

2. Construct well-reasoned arguments to explain phenomena, validate conjectures, or support positions.

College Ready Description: Student provides explanations to support his or her answers.

Evidence for Scoring: Student demonstrates an understanding of the mathematical concepts inherent in the ISBN method.

3. Gather evidence to support arguments, findings, or lines of reasoning.

College Ready Description: Student identifies patterns and verifies examples.

Evidence for Scoring: Student reviews the information in the Checking the Numbers handout.

C. Problem Solving

2. Develop and apply multiple strategies to solve problems.

College Ready Description: Student effectively uses a range of methods to analyze check digits.

Evidence for Scoring: Student uses calculations to compute check digits, “guess and check” to locate a transposition error that is known to exist, and algebraic thinking to explain why the ISBN method detects all single-digit errors.

D. Academic Behaviors

1. Self-monitor learning needs and seek assistance when needed.

College Ready Description: Student keeps a mindful eye on his or her integration of knowledge as it progresses and is able to ask fellow students and the instructor for help.

Evidence for Scoring: Student is comfortable admitting he or she does not know an answer and is willing to re-examine the material to relearn.

2. Use study habits necessary to manage academic pursuits and requirements.

College Ready Description: Student looks over the material he or she needs to incorporate and tries to come up with a logical approach to complete the task in the allotted time.

Evidence for Scoring: Student manages time in order to complete the assignment in time and with the appropriate amount of detail.

3. Strive for accuracy and precision.

College Ready Description: Student accurately performs all computations.

Evidence for Scoring: Student correctly computes the check digit for the ISBN given in Drawing Conclusions step 1.

4. Persevere to complete and master tasks.

College Ready Description: Student perseveres to complete all parts of the assignment.

Evidence for Scoring: Student writes an argument about why ISBN check digits reveal all single-digit errors.

E. Work Habits**1. Work independently.**

College Ready Description: Student can work though the problems by themselves.

Evidence for Scoring: Student does not wait until the group work to start thinking about the activity.

FOUNDATIONAL SKILLS**B. Writing Across the Curriculum****1. Write clearly and coherently using standard writing conventions.**

College Ready Description: Student correctly uses symbols and terminology to clearly communicate his or her conclusions.

Evidence for Scoring: Student accurately applies terms, such as transposition error and check digit.

D. Use of Data**1. Identify patterns or departures from patterns among data.**

College Ready Description: Student identifies patterns and counter-examples.

Evidence for Scoring: Student demonstrates an understanding of how ISBN numbers detects errors.

3. Present analyzed data and communicate findings in a variety of formats.

College Ready Description: Student communicates their findings verbally and in writing.

Evidence for Scoring: Student answers questions in writing and participates in class discussion.

MATHEMATICS STANDARDS**I. Numeric Reasoning****A.1. Number representation.**

College Ready Descriptions: Student compares real numbers.

Evidence for Scoring: Student checks for transposition errors in UPC numbers.

C.1. Number sense and number concepts.

College Ready Description: Student uses estimation to check for errors and reasonableness of solutions.

Evidence for Scoring: Student uses the check digit to find errors in UPCs.

II. Algebraic Reasoning**B.1. Manipulating expressions.**

College Ready Descriptions: Student recognizes and uses algebraic properties, concepts, procedures, and algorithms to combine, transform, and evaluate expressions.

Evidence for Scoring: Student finds the check digit for an ISBN number.

VIII. Problem Solving and Reasoning**A.1, 2, 3, 4. Mathematical problem solving.**

College Ready Descriptions: Student analyzes given information, formulates a plan or strategy, determines a solution, and justifies the solution.

Evidence for Scoring: Student determines whether the UPC method will detect all single-digit errors.

IX. Communication and Representation**A.1, 2, 3. Language, terms, and symbols of mathematics.**

College Ready Descriptions: Student uses mathematical symbols, terminology, and notation to represent given and unknown information in a problem. Student uses mathematical language to represent and communicate the mathematical concepts in a problem. Student uses mathematics as a language for reasoning, problem solving, making connections, and generalizing.

Evidence for Scoring: Student uses algebraic expressions in methods for checking UPC Codes.

X. Connections**A.2. Connections among the strands of mathematics.**

College Ready Descriptions: Student connects mathematics to the study of other disciplines.

Evidence for Scoring: Student explores how the use of UPC Codes and ISBN numbers solves business problems.

Checking the Numbers – Scoring Instructions

Place a score (1-4) in each row of the scoring sheet corresponding to the student's college readiness level.

Exceeding College Ready (4): Substantially exceeds the performance expectations

College Ready (3): Shows proficiency in all of the performance expectations

Approaching College Ready (2): Meets only some of the performance expectations

Initiating College Ready (1): Does not yet meet the performance expectations

Suggested Grade Conversion:

This chart reflects equal weight given to each skill. As key cognitive skills, foundational skills, and discipline content knowledge are all important elements of college readiness, we recommend this grading approach. However, you may certainly choose to implement different weights to particular scales and assign a grade at your discretion.

Score	Grade		Score	Grade		Score	Grade		Score	Grade
48	100		39	89		30	80		21	73
47	99.5		38	87		29	79.5		20	72
46	99		37	86		28	79		19	71
45	98		36	85		27	78.5		18	70
44	97		35	84.5		26	78		17	68
43	96		34	84		25	77		16	66
42	95		33	83		24	76		15	64
41	93		32	82		23	75		14	62
40	91		31	81		22	74		13	60