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AUTHOR Pianelli, Mary Ann
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ABSTRACT

To ensure that tech prep reaches at-risk students at the earliest possible stages, the Houston Community College System and the Houston Independent School District have designed a Tech Prep Middle College (TPMC) providing high school students with a 6-year program of study beginning in 9th grade and leading to an Associate in Applied Science degree with advanced technology skills. The TPMC features a strong community-based component, encouraging field trips and community service at all levels. The first 2 years of the program feature interdisciplinary coursework designed to interrelate English, math, social studies, and science in the classroom as they exist in the real world. The final 2 years of the high school component allow students to specialize in engineering technology courses, where the academic component of the school is somewhat more traditional but still provides integration between academic subjects and vocational/applied technology courses. The post-secondary phase of the program continues the supportive atmosphere of the secondary program and allows students to pursue technical and academic course work applicable toward both an associate degree conferred by TPMC and transfer to a four-year institution. In fall 1994, the TPMC enrolled its first class of 60 students who were 46% Hispanic, 19% Black, and 55% male. Problems encountered by the program included lack of space, improperly designed facilities, and lack of realistic planning beyond the program's first year. (Includes program requirements, mission statement, and a timeline of TPMC implementation.) (MAB)

HOUSTON COMMUNITY
COLLEGE SYSTEM
COLLEGE WITHOUT WALLS

HOUSTON COMMUNITY COLLEGE SYSTEM COLLEGE WITHOUT WALLS IN PARTNERSHIP WITH THE HOUSTON INDEPENDENT SCHOOL DISTRICT

TECHNOLOGY MIDDLE COLLEGE

houston independent school district
houston community college system

TECH PREP MIDDLE COLLEGE

Tech Prep is a major thrust of the Carl Perkins Vocational/Applied Technology Education Act of 1990. The act envisions a program which uses "effective strategies reaching beyond the boundaries of traditional schooling" which provide "early and sustained intervention by parents, teachers and educational institutions" to address the skyrocketing drop-out rates which are plaguing this nation.

The act specifically addresses 2+2 programs, or the coordination of the last two years of high school with two years of community college technical training. However, if such programs are to have a meaningful effect on the most disadvantaged, "at-risk" students, the program must begin earlier than the junior year of high school. By that point, too many students, many of whom are capable and talented, have given up on the educational system. The reasons are manifold: boring, "irrelevant" curricula, family problems, the ever more serious distractions of drugs or premature parenthood. The intervention simply must begin earlier.

The Houston Community College System foresees a Tech Prep Middle College, designed in partnership with the Houston Independent School District, which begins not at the eleventh grade but at the ninth grade, a crucial year in determining the educational future of many youngsters.

The Tech Prep Middle College would have a strong community-based component. Field trips and community service would be encouraged at all levels. A one-on-one mentoring program would provide the students with successful role-models and simply "someone to talk to."

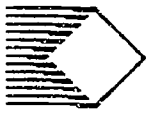
The first two years of the program would feature an innovative, integrated curriculum. The walls between English, math, social studies and science would be broken down and examined as these disciplines interrelate in the "real world." This integrated curriculum, which would nonetheless address all the Texas Education Agency-mandated essential elements, would be based largely on the Industrial Technology curriculum and would be project-oriented. For example, an Industrial Technology-based unit dealing with construction design and graphics would be unpacked to reveal its relationship to math (measurements), to physics (structural integrity), to geography and history (the nature and role of shelter), to the fine arts (architectural styles) and to English (both through writing about the subject and through the study of literary works which address humanity and shelter). A recent study of the American middle school, published by the National Association of Secondary School Principals, has shown that a vigorous Industrial Technology curriculum can spark a student's interest in learning. HCCS and HISD would seize this opportunity to engage the interests of "at-risk" students to ultimately expand their horizons and their quest for knowledge.

The final two years of the high school component of the Middle College program would allow students to specialize in engineering technologies courses. The academic component of the school would be somewhat more traditional in form but would still provide for integral correlations between academic subject areas and the vocational/applied technology courses.

The two year post-secondary phase of the program would continue the supportive atmosphere of the secondary program. The students would pursue both the technical and academic course work which would allow them to graduate with an associate degree. In addition, all credit courses would be fully transferrable to a four-year institution.

A program of this nature, which pushes out the boundaries of traditional educational practices, requires, at the very least, two things: adequate planning and visionary, creative faculty members who are truly dedicated to working with at-risk kids. The first year would be devoted to program design, ninth-grade curriculum development, and recruitment, both of outstanding faculty and the students who would make up the first Tech Prep Middle College student body. The second year, a ninth-grade only program would be offered; planning would continue for the tenth grade program. The overall program would be implemented a grade a year until the complete six year program was in place.

The concept and dream of Tech Prep is that innovative educational designs can address the nation's needs for well-trained people to compete in a world economy while, at the same time, truly making a difference in the lives of young people.



MINIMUM TECH-PREP PROGRAM REQUIREMENTS

In order to be considered a Tech-Prep AAS degree program, the program must, at a minimum, provide:

A. A six-year program of study beginning in the ninth grade of high school and leading to an AAS degree with advanced skills from a public community or technical college;

B. A cooperatively-developed (business, industry and labor, secondary and higher education), competency-based technical education curriculum which is non-duplicative and which effectively integrates academic and technical competencies;

C. Graduation plans or programs of study which specify a coherent sequence of technical and college preparatory and college-level general education courses which span secondary and higher education levels;

D Student competence in critical thinking skills and application of mathematics, science and communication skills, as well as integration of workplace-transferable technical and academic skills;

E. Student workplace basic skills;

F. Integrated workplace and classroom learning experiences which provide theoretical and applied instruction and practical experience in a business or industry connected with the area of study;

G. Opportunities for advanced technical skills training and/or baccalaureate study;

H. A coordinated delivery system for educational and social preparatory and support services for students, including special population students, to ensure access to program participation and student achievement;

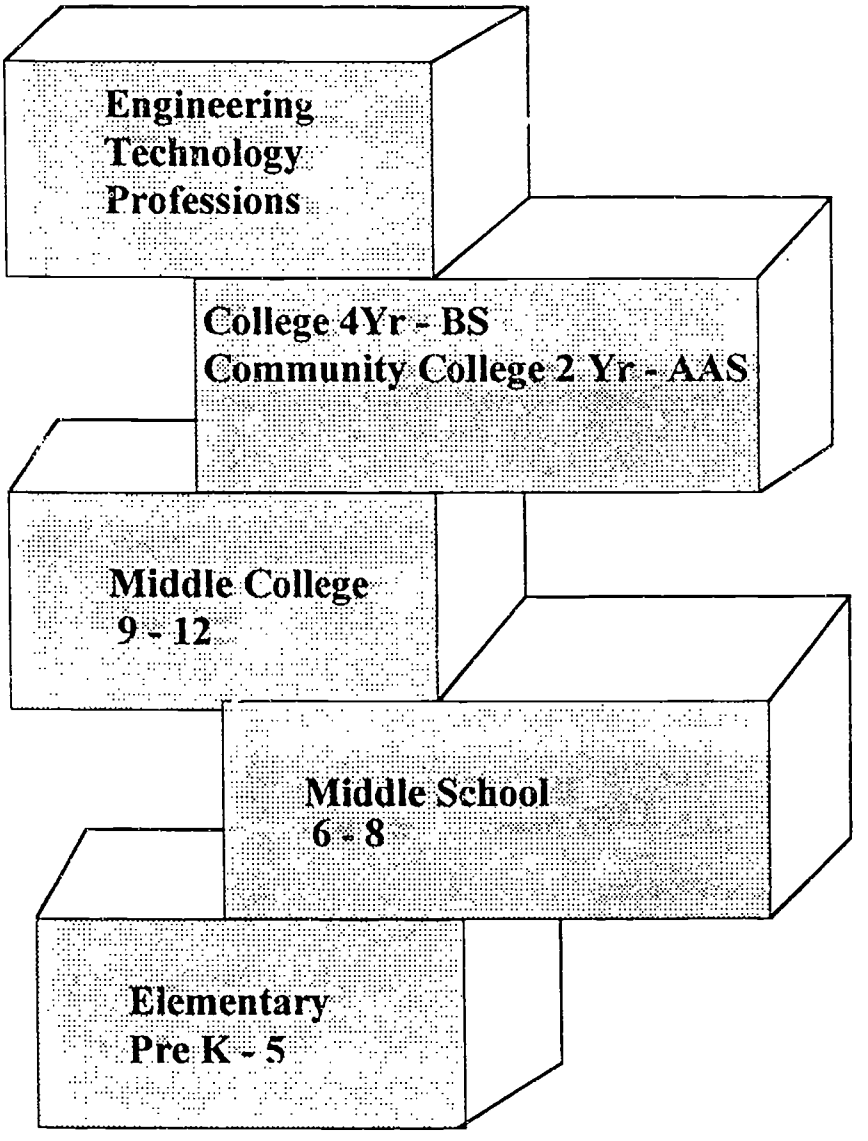
I. A comprehensive career development guidance counseling program for students beginning no later than the seventh grade and continuing throughout the program;

J. A comprehensive and continuous professional development program for secondary and higher education academic and vocational/technical faculty, counselors, other staff, and administrators involved in Tech-Prep programs; and

K. A method to identify and follow the progress and outcomes of Tech-Prep students throughout the program.

Houston Independent School District
Houston Community College System/
College Without Walls

TECH PREP MIDDLE COLLEGE



Mission Statement

Houston Independent School District and the Houston Community College System Engineering Technology Tech-Prep program will provide the high school student with a six-year program of study beginning in 9th grade and leading to an Associate in Applied Science degree with advanced technology skills.

Major Goals:

* provide student with a graduation plan or programs of study which includes a balanced, grade-level general education core as well as a coherent sequence of technical courses and college-level general education which span secondary and higher education levels;

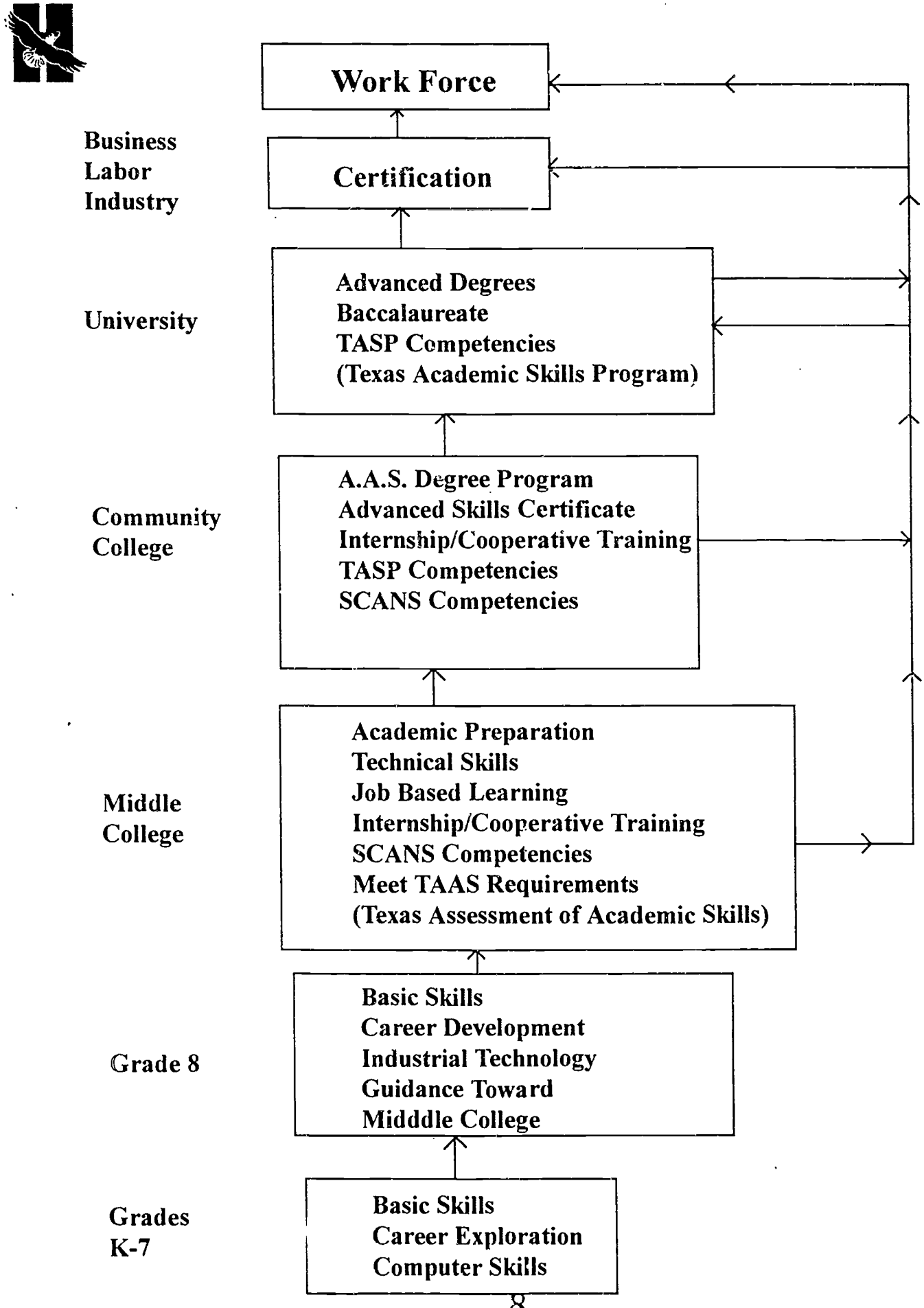
* provide students with access to the Houston Community College Without Walls campus; learning resources, equipment and faculty;

* provide student competence in critical thinking skills and application of communication, mathematics, and science skills;

* a cooperatively developed, competency-based technical education curriculum that effectively integrates academic and technical competencies across the curriculum;

* provide integration of workplace-transferable technical and academic skills through external learning opportunities;

* provide opportunities for advanced technical skills training and/or baccalaureate study.


Work Force
Business
Labor
Industry
Certification
University
Advanced Degrees
Baccalaureate
TASP Competencies
(Texas Academic Skills Program)
Community
College
A.A.S. Degree Program
Advanced Skills Certificate
Internship/Cooperative Training
TASP Competencies
SCANS Competencies
Middle
College
Academic Preparation
Technical Skills
Job Based Learning
Internship/Cooperative Training
SCANS Competencies
Meet TAAS Requirements
(Texas Assessment of Academic Skills)
Grade 8
Basic Skills
Career Development
Industrial Technology
Guidance Toward
Midddle College
Grades
K-7
Basic Skills
Career Exploration
Computer Skills

TECHNOLOGY MIDDLE COLLEGE

Selected students within the Houston Independent School District meeting established Tech-Prep guidelines, entering the 9th grade

Houston Community College System
College Without Walls
Technology Campus

* Integrated Tech-Prep curriculum, staisfying requirements for high school graduation within State of Texas
* College campus environment, safety, security
* Access to college library, laboratories
* Interaction with college faculty, students
* TASS (Texas Assessment of Academic Skills) requirements satisfied
* SCANS competencies gained
* Internship/COOP activities
* Field trips, summer "bridge" programs

HCCS

Certificate or AAS program

↓

University

B. S. program

↓

Employment

University → **Employment**

B.S. program

TPMC Time Line Development

Fall, 1991: HISD/HCCS-CWW Tech-Prep application for Middle College Project

Fall, 1991: HCCS-CWW Middle College concept for project - Engineering Technology focus

Fall, 1992: HISD buy-in to Technology Middle College concept

Summer, 1992: Visited Middle College High School, LaGuardia Community College, Long Island, NY.

Spring, 1993: Developed Goals and Mission Statement for TPMC

Spring, 1993: Assembled curriculum team; selected industry/community advisory committee; selected HISD/HCCS-CWW management team

Summer, 1993: Design first-year curriculum around state requirements, Tech-Prep guidelines and TPMC mission and goals

Fall, 1993: Finalize first-year curricular design; developed criteria for students entering TPMC

Fall, 1993: Introduces the Technology Middle College concept to selected HISD middle schools; begin the application and selection process

Spring, 1994: Finalize details on library acquisitions, food service, transportation, facility needs

Spring, 1994: Finalize application, screening process of students

Spring, 1994: Breakfast get-together for HISD/HCCS-CWW counselors, middle school principals, faculty and administrators

Spring, 1994: Meeting with students, parents, campus tour

Summer, 1994: Final selection of HISD TPMC faculty

Summer, 1994: Enrichment activities for incoming students (industry tours, academic, computer workshops)

Fall, 1994: Technology Middle College begins its first class of 60 students!!

Technology Middle College Entrance Requirements

Reside within HISD

Be entering 9th grade

Over-all "C" average in core course work

Grade-level performance on standardized tests

An interest in math, science, computer technology

Maintain at least a "G" in conduct and attendance

Transcript of middle school grades, copy of most current 8th grade report card

Standardized test scores on your permanent school record

TAAS (Texas Assessment of Academic Skills) test scores

Current health records

A written paper (one page, maximum 3 paragraphs) on why you want to enroll in the Technology Middle College

Profile of the TPMC Student

has average to above grades from elementary and middle school

has an expressed interest in technology, science and math

comes from an average middle-to-low socioeconomic family, from parents who are genuinely concerned about campus security, educational quality and their child's future

profile suggest he/she would complete high school

profile suggest he/she probably would not enter the university directly after high school

profile suggest he/she would benefit from a nurtured environment to succeed

widely dispersed from within the Houston Metropolitan Area

46% Hispanic, 31% Caucasian, 19% Black, 4% Oriental

55% male, 45% female

Problems

lack of space after first year

facility not designed with secondary school requirements in mind

too much detailed planning and carry-through in last 2-3 months

lack of any (realistic) planning beyond first year

HIGH SCHOOL CORE CURRICULUM

9th	10th	11th	12th
ENGLISH (1)	ENGLISH II (1)	ENGLISH III (1)	ENGLISH IV (1)
ALGEBRA I (1)	ALG. IC/GEOMETRY (1)	GEO IB/ALGEBRA IIA (1)	ALG IIB (1/2)
(or GEOMETRY 1) **	BIOLOGY (1)	CHEMISTRY (1)	
US HISTORY (1)	WORLD HISTORY (1)	WORLD GEOGRAPHY (1)	GOVT./ECO.(1)
HEALTH (1/2)			
SCIENCE (1/2)			

(1 ADDITIONAL YEAR OF PHYSICAL EDUCATION)

ELECTIVES

*TECH SYSTEMS (1)	*COMPUTER APP. (1)	*ELEC. ELECTRONICS SYS (1)	*PHYSICS (1)
*KEYBOARDING (1/2)	FOREIGN LANGUAGE (1)	(INTERNSHIP INCLUDED)	*FOREIGN LANGUAGE (1)
*INTRO. TO BUSINESS (1/2)		COMPUTER SCIENCE (1)	*PRIN. OF TECH I & II (2)
		RESEARCH & DEV. (1)	(INTERNSHIP INCLUDED)
		(INTERNSHIP INCLUDED)	*TRIG IA (1/2)/CALCUS (1/2)
*Elective Credit in Program Area		COMMUNICATION SYS (1)	
**Completed Alg. 1 in Mid. Sch.		(INTERNSHIP INCLUDED)	**ELECTIVE OPTIONS**
		FOREIGN LANGUAGE (1)	*D.C. SYSTEMS (HCCS)
			*PSYCH (HCCS)
			COOPERATIVE EDUC. (3 HR)
			FINE ARTS (1)

REGULAR HIGH SCHOOL DIPLOMA		ADVANCED HIGH SCHOOL DIPLOMA	
ENGLISH	4 CREDITS	ENGLISH	4 CREDITS
MATH	3 1/2-4 CREDITS	MATH	3 1/2-4 CREDITS
HISTORY	3 CREDITS	HIST/GEOG./GOVT./ECO.	4 CREDITS
SCIENCE	2 CREDITS	SCIENCE	3 CREDITS
HEALTH	1/2 CREDIT	HEALTH	1/2 CREDIT
PHYSICAL EDUCATION	1 1/2 CREDITS	FOREIGN LANGUAGE	3 CREDITS
ELECTIVES	6-6 1/2 CREDITS	PHYSICAL EDUCATION	1 1/2 CREDITS
	21 CREDITS	ELECTIVES INC FINE ARTS	4-7 1/2 CREDITS
			24 CREDITS (minimum)