



Current status of 'Information Study' in senior high schools in Japan

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- Educational System & Information Study in Japan
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A green chalkboard with a world map mounted on the wall above it. A wooden ruler is leaning against the left side of the chalkboard. The title "Education System & Information Study in Japan" is written in white, stylized text in the center of the chalkboard. There are some faint, light-colored handprints on the right side of the chalkboard.

Education System & Information Study in Japan

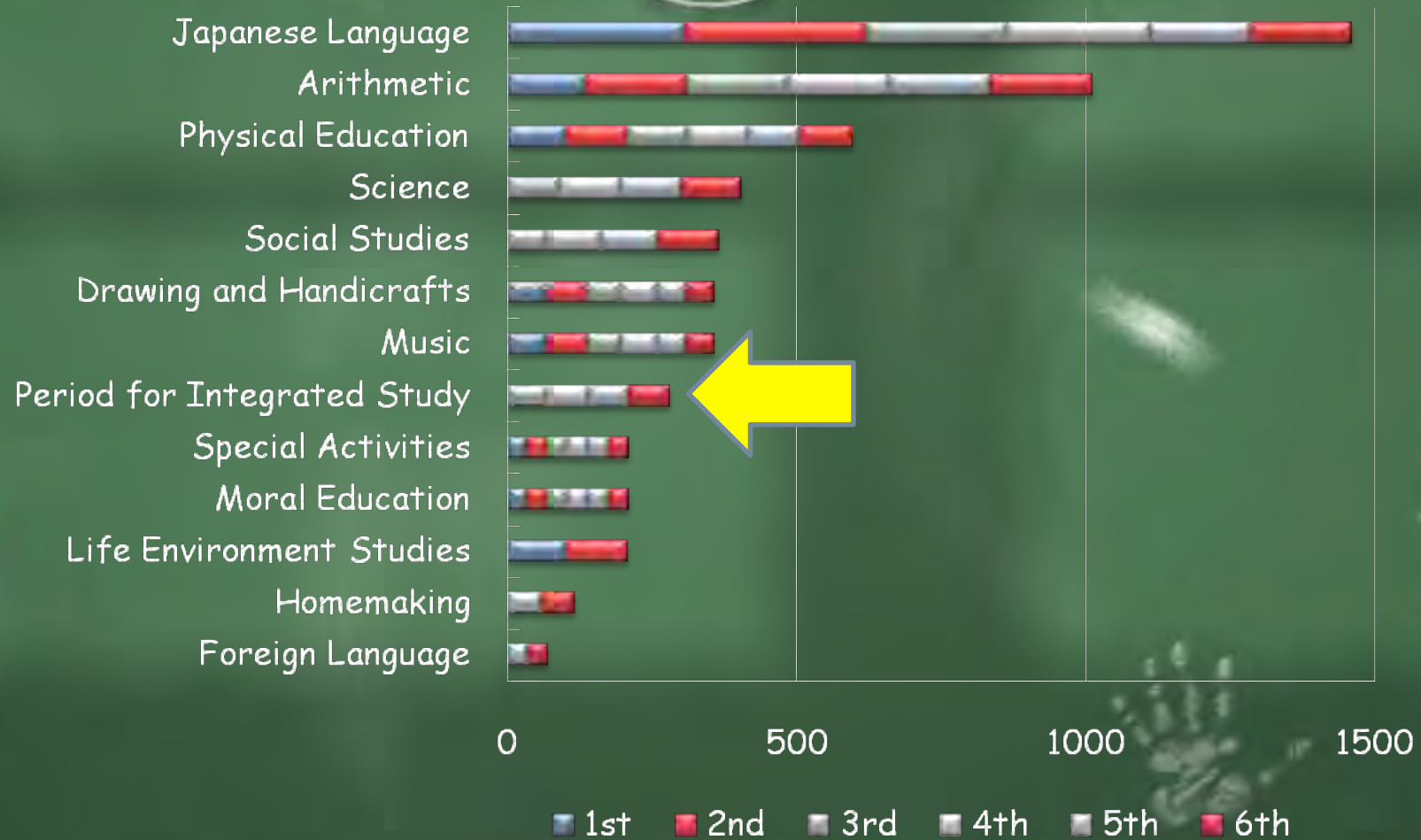
Educational System

age	school	grade
22-	Graduate School	
18-21	University/College	1-4
15-17	Senior High School	1-3
12-14	Junior High School	1-3
6-11	Elementary School	1-6
-5	Kindergarten	

Elementary School

- Japanese Language
- Arithmetic
- Social Studies
- Science
- Life Environment Studies
- Music
- Drawing and Handicrafts
- Homemaking
- Physical Education
- Moral Education
- (Foreign Language)
- **Period for Integrated Study**
- Special Activities

Class time of ES



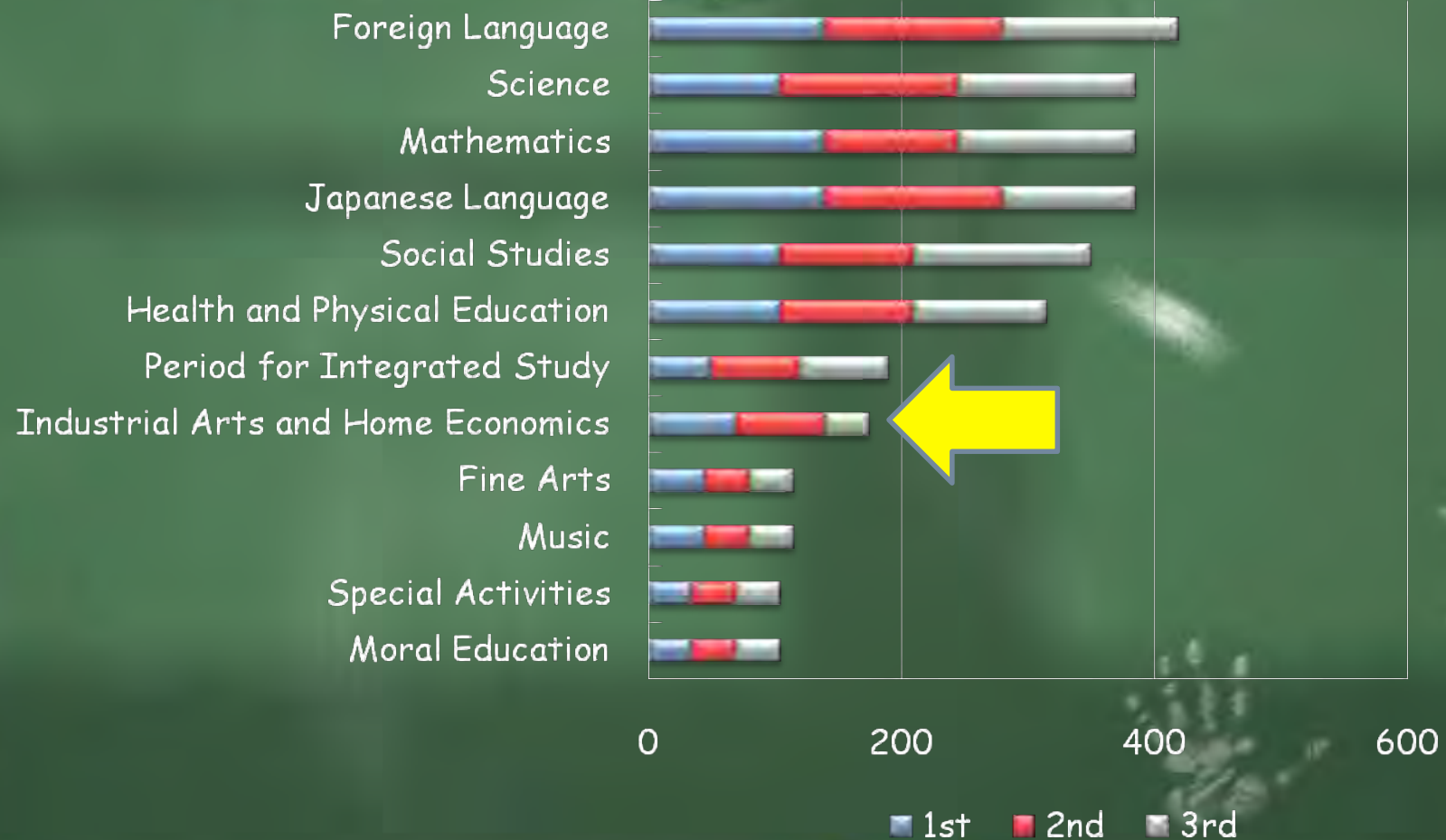
Integrated Study

- Interdisciplinary and Comprehensive Studies such as
 - International Understanding
 - **Information**
 - Environment
 - Welfare and Health
 - etc.
- 5% of total hours in ES
 - Information study is just a part of it

Junior High School

- Japanese Language
- Social Studies
- Mathematics
- Science
- Music
- Fine Arts
- Health and Physical Education
- Industrial Arts and Home Economics
- Foreign Language
- Moral Education
- Period for Integrated Study
- Special Activities

Class time of JHS



Industrial Arts and Home Economics

Industrial Arts

1. Material and processing
2. Energy transduction
3. Living thing promotion
4. **Information**

Home Economics

1. Family, home, and the children's growth
2. Eating habits
3. Clothes life and housing life
4. Consumption life and environment

Information

- Information Communication Network and Information Ethics
- Design and Creation of Digital **Compulsory Contents**
- Measure and Control by Computer Program
- Total hours: 3045; IA & HE: 175
- Information section: 22
- 0.7% of total class time in JHS

Senior High School

- Japanese Language
- Geography and History
- Civics
- Mathematics
- Science
- Health and Physical Education
- Arts
- Foreign Language
- Homemaking
- **Information Study**
- Period for Integrated Study
- Special Activities

Information Study in one of compulsory subjects

A green chalkboard with a world map mounted at the top. A wooden ruler is on the left side, and a chalk eraser is at the bottom center. The text "Information Study in Japanese SHS" is written in the center.

Information Study in Japanese SHS

Information Study

- Added to SHS's subjects in 2003
- Just only **2 units** of 74-90 total units

3 Learning Cores

- Practical Use of Computers
(to make the best use of information)
- Scientific Understanding of
Information (CS and its surroundings)
- Model Attitudes of Participation in our
Information Society
- first appearance at "the researchers
conference for promotion of
Information education in K-12" in 1997

Subjects

- General subject
 - 3 subjects
 - Compulsory: one of them
- Special subject
 - 11 subjects
 - For Expected IT Engineers

General subjects

- Information Study A (IS-A)
 - Practical Use of Computers
- Information Study B (IS-B)
 - Scientific Understanding of Information
- Information Study C (IS-B)
 - Model Attitudes of Participation in our Information Society
- Any of them consists of 3 cores

Information Study A

- Basic Skills of Computers
- Computer's Effectiveness
- Collecting/Sending/Processing of Information
- Changes in Our Life Informatization

Information Study B

- Understanding of Information Scientifically
- Using Computer for Problem Solving
- Mechanism of Computer
- Modeling/Simulation
- Database
- Information Technology

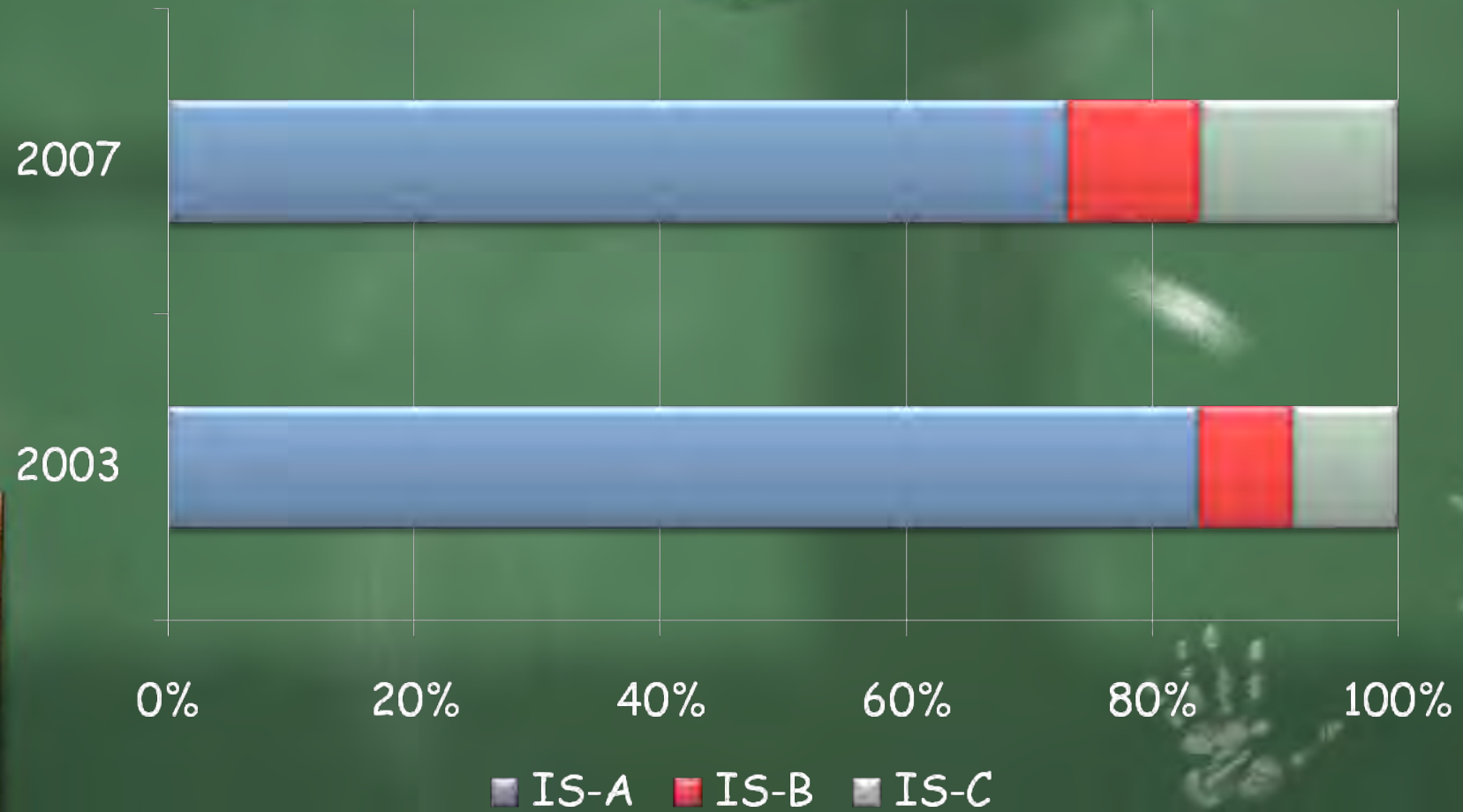
Information Study C

- Model Attitude of Participation in Our Information Society
- Digital Expressions
- Computer Network/Human Network
- Responsibility of Collecting/Sending Information
- Influence to Our Society by Informationization

Researchers' Conference

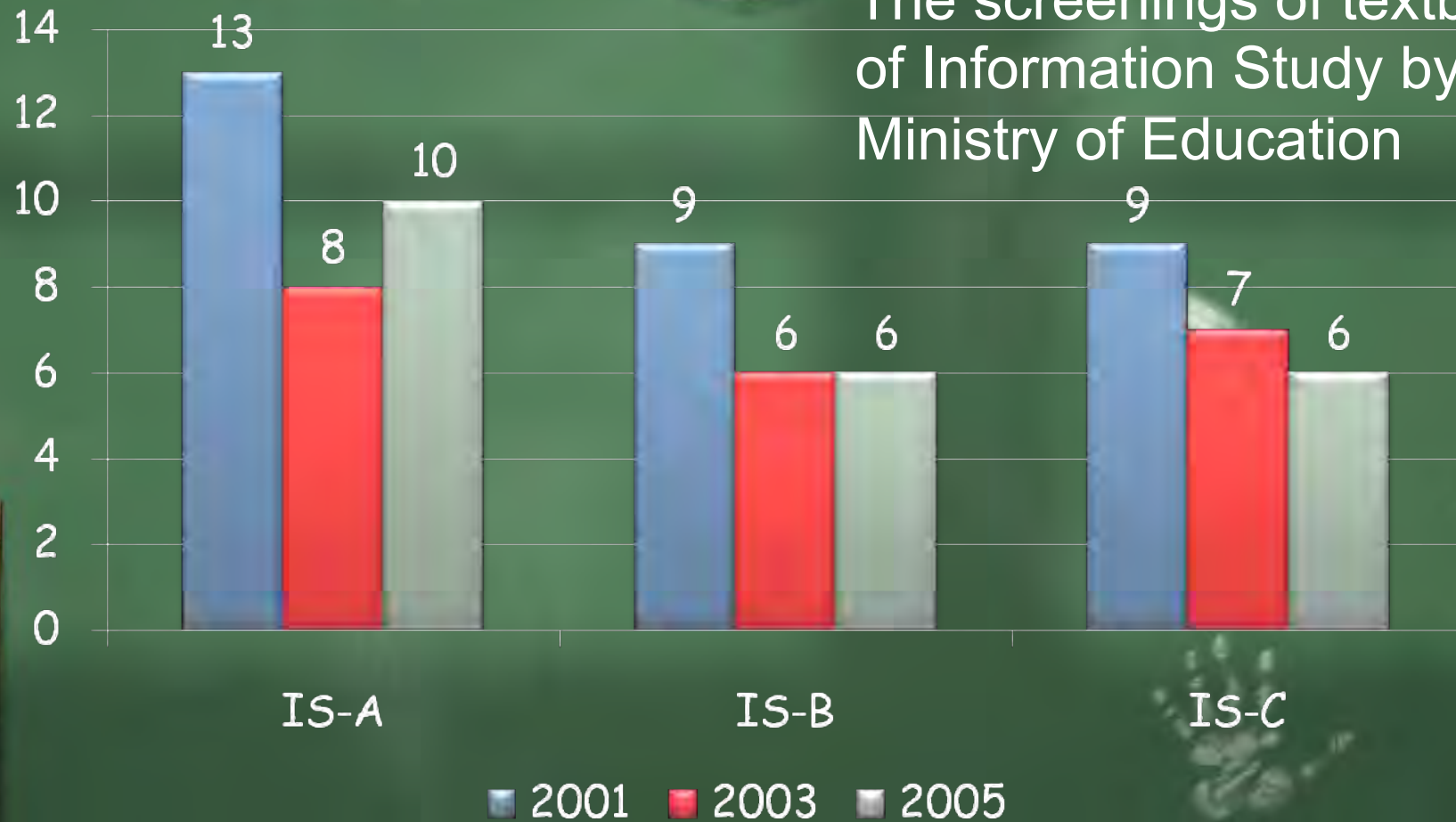
- ✎ For Promotion of Information education in K-12
 - ✎ In the First Report
 - ✎ Scientific Understanding of Information
 - ✎ Model Attitudes of Participation in our Information Society
 - ✎ In the Second Report
 - ✎ 'Practical Use of Computers' is added supplementarily

Share of IS-A/B/C

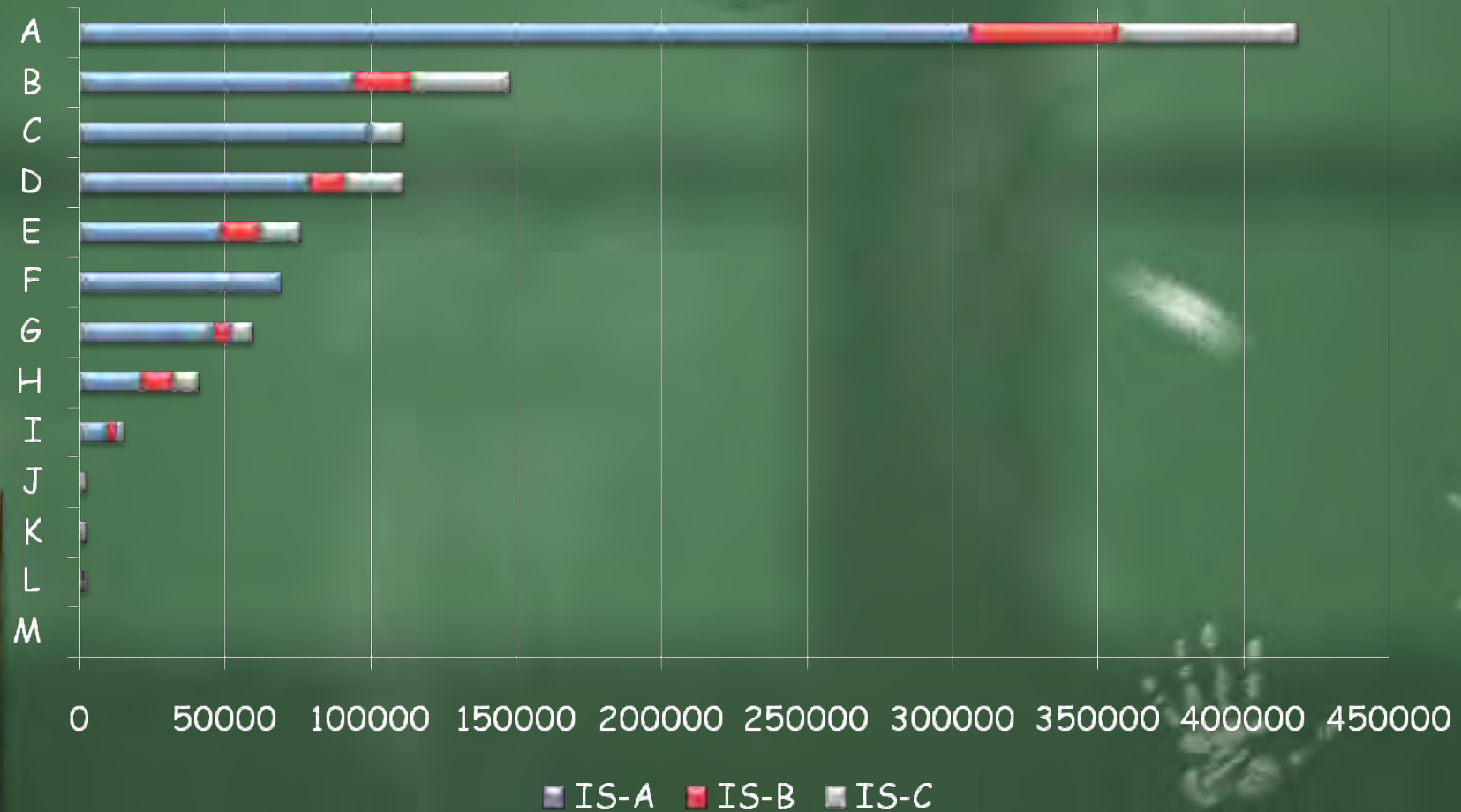


Kinds of Textbooks

The screenings of textbooks
of Information Study by the
Ministry of Education



Number of Textbooks



Special Subject

1. Information Industries and Society
2. Project Research
3. Information Practice
4. Information and Expression
5. Algorithm
6. Development of Information Systems
7. Network Systems
8. Modeling and Simulation
9. Computer Design
10. Processing of Figures and Images
11. Expression of Multimedia

Special Course of Information Study

- Only 20 SHSs have Special Course of Information Study
 - 5,313 SHSs in Japan
 - 0.38%
- 2,374 students belong to the course
 - 3,397,735 SHS's students in Japan
 - 0.07%

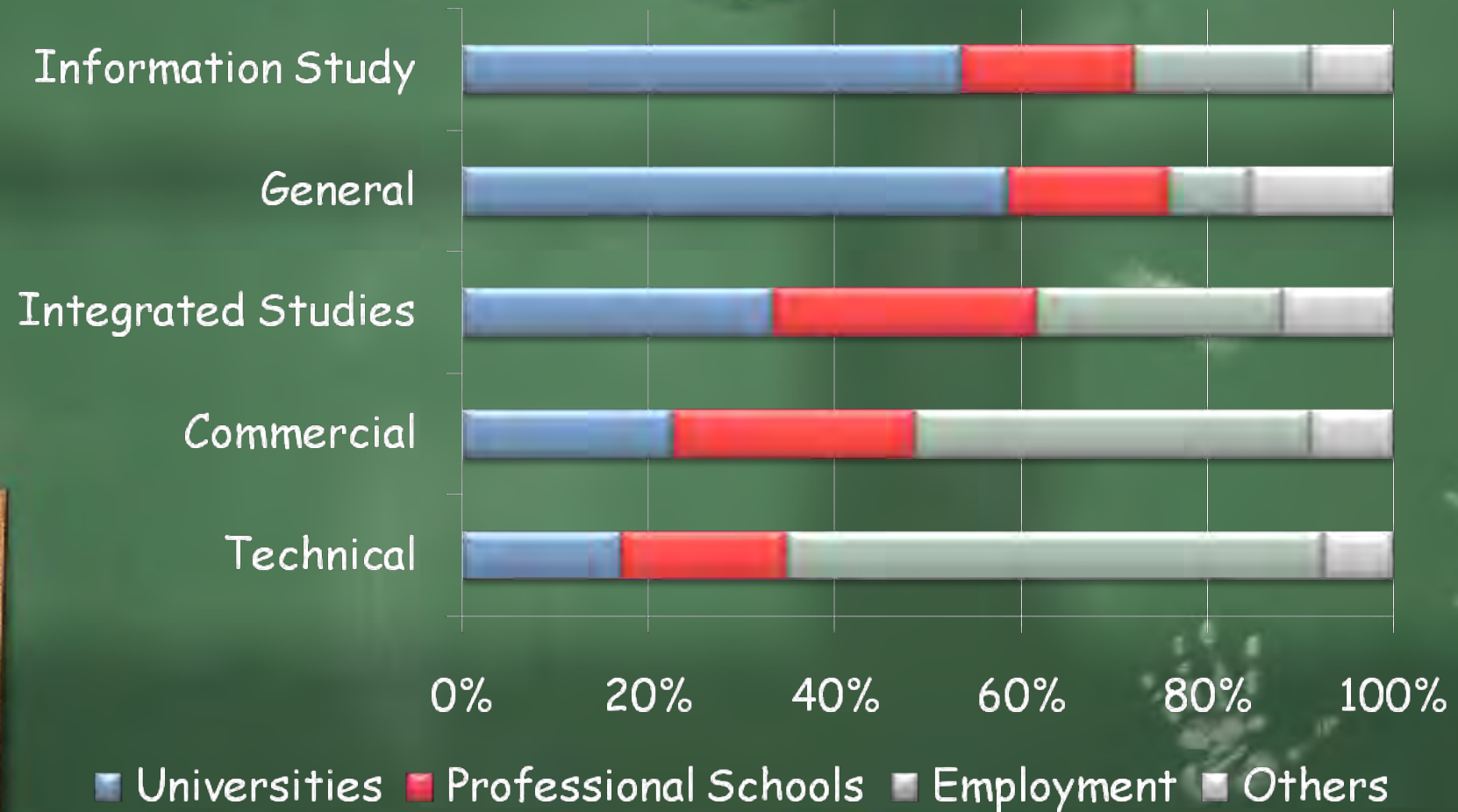
(2007)

Special Course of SHSs

- Commercial
 - 795 SHSs
- Technical
 - 628 SHSs
- Integrated Studies
 - 294 SHSs
- Information Study
 - 20 SHSs

(2007)

After SHS Graduation



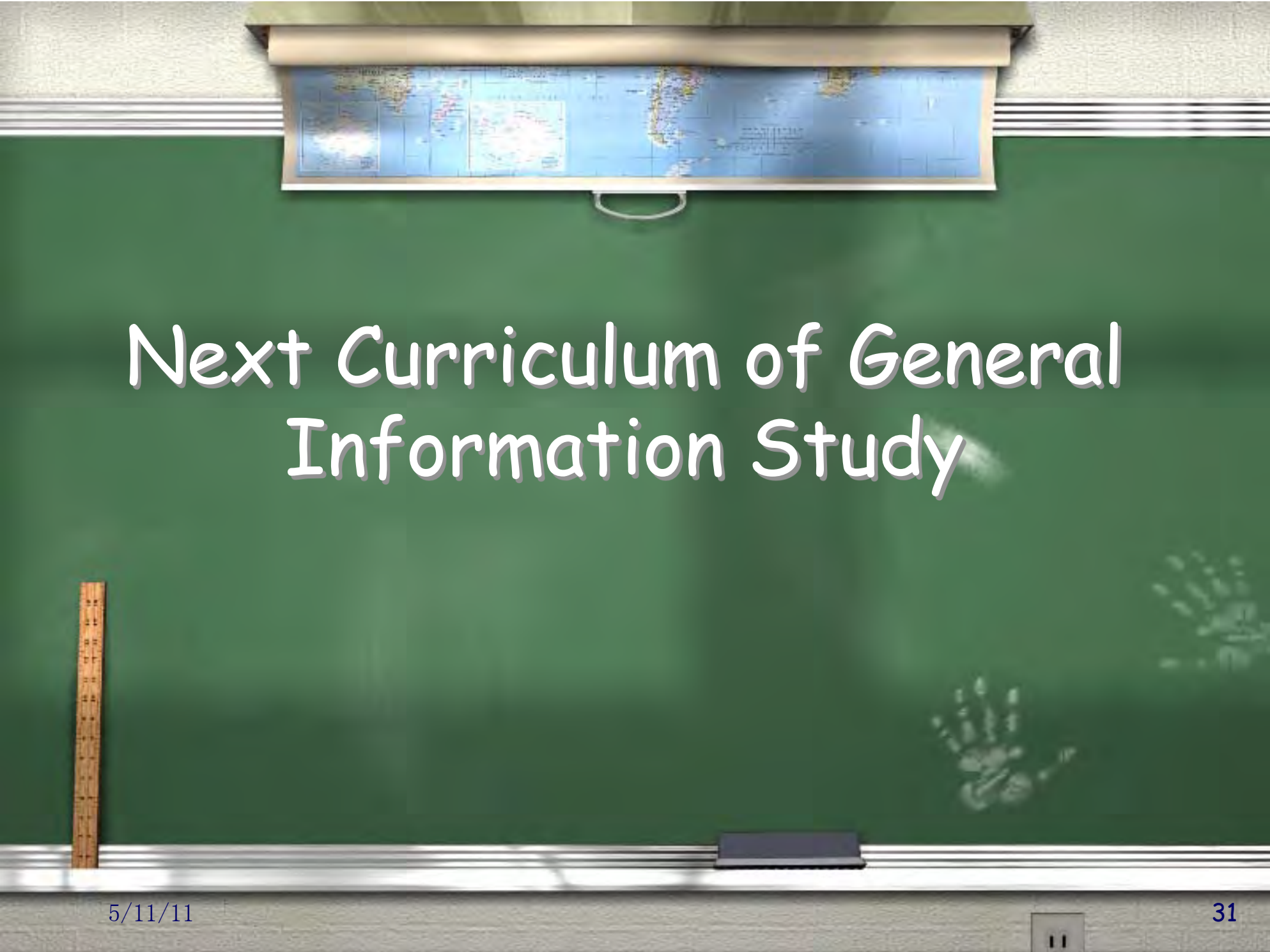
Univ Entrance Exam

- 23 univs provide Information Study as a selective subject
- 756 univs exist in Japan

(2007)

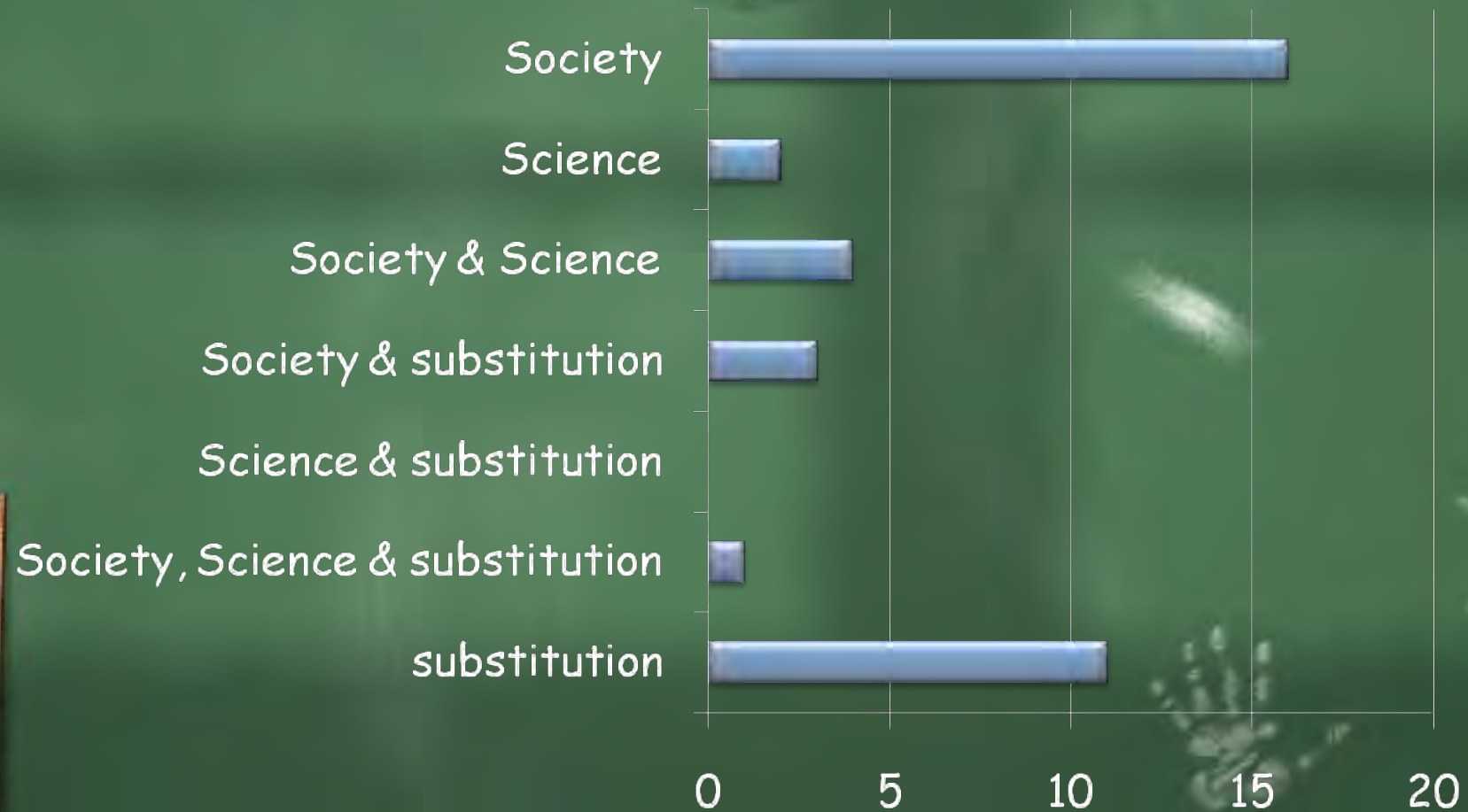
Teacher Adoption

- Information Study Teacher Adoption
 - 30-50/year
 - SHS's Ts Adoption: 2500-3000/year
- Only 12 of 53 BOE executed
- Many BOE required another subject license

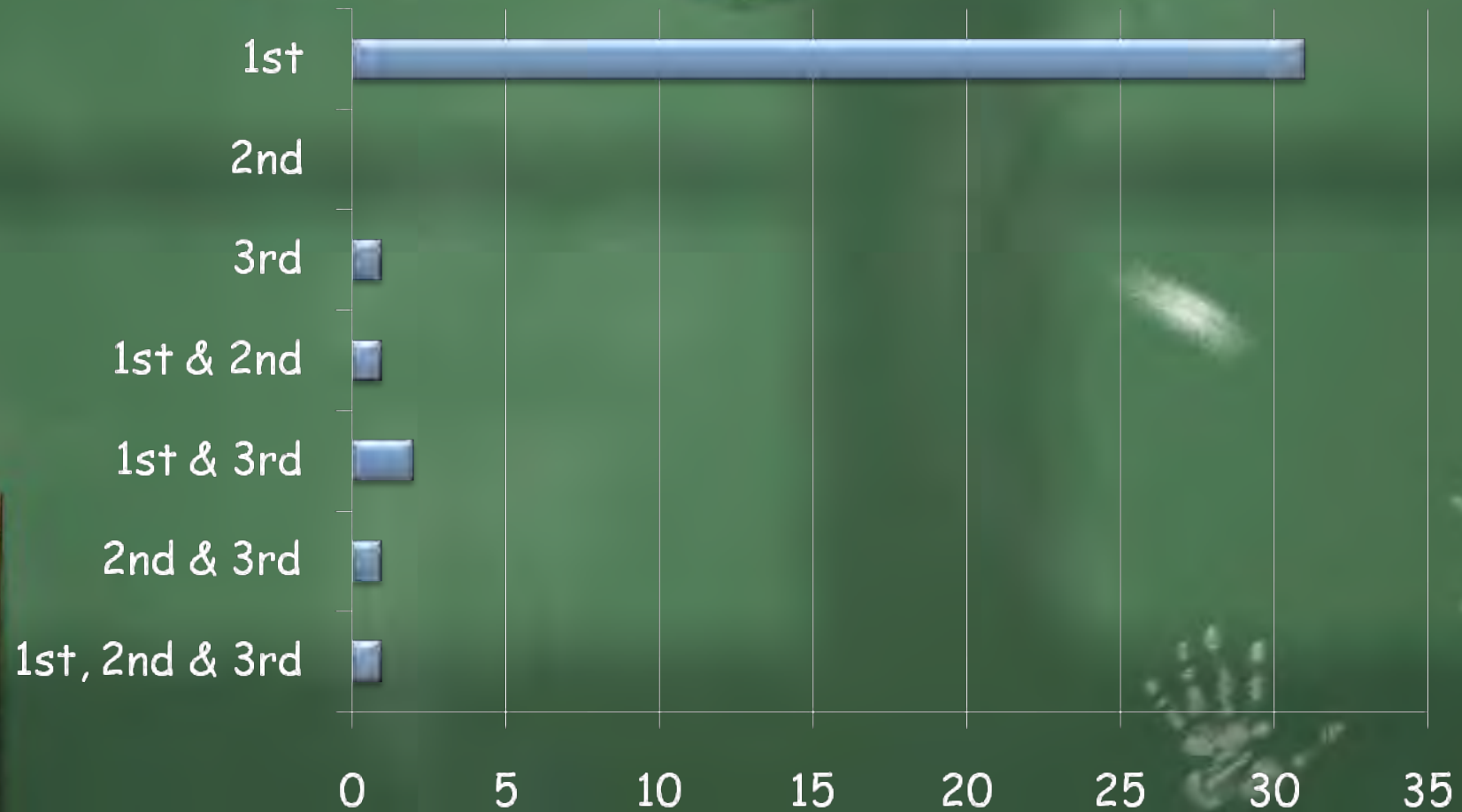


Next Curriculum of General Information Study

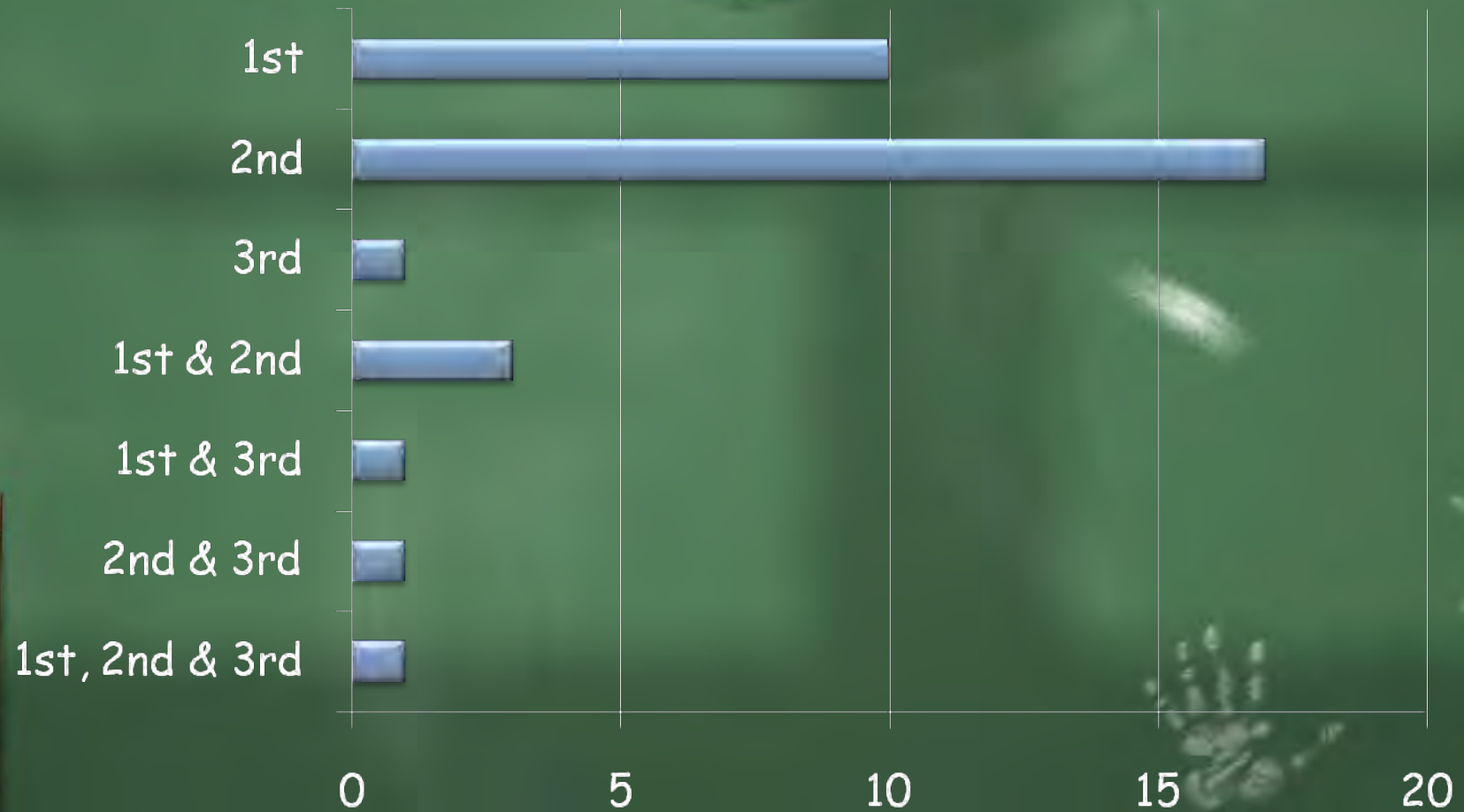
Installation expectation



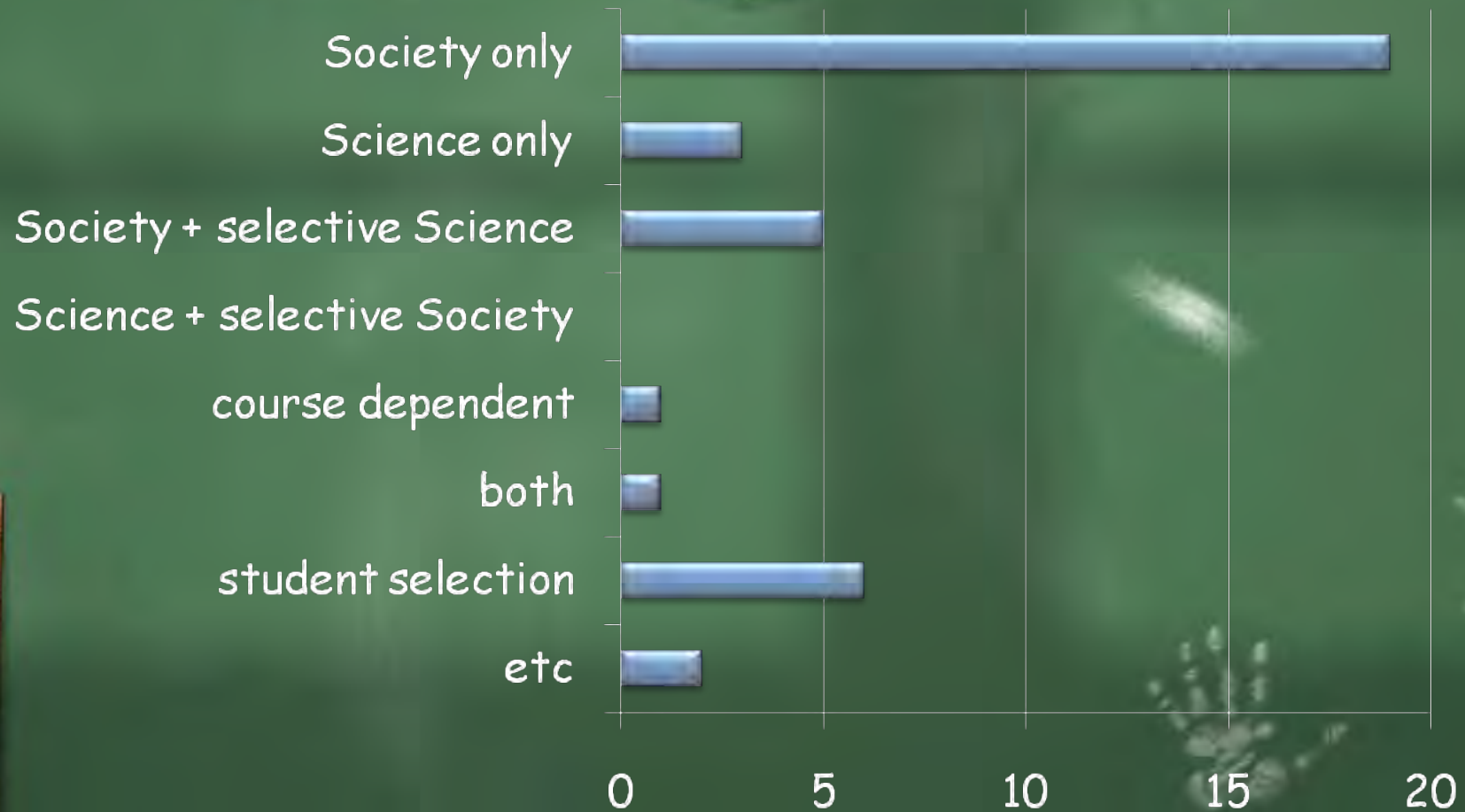
Grade for Society



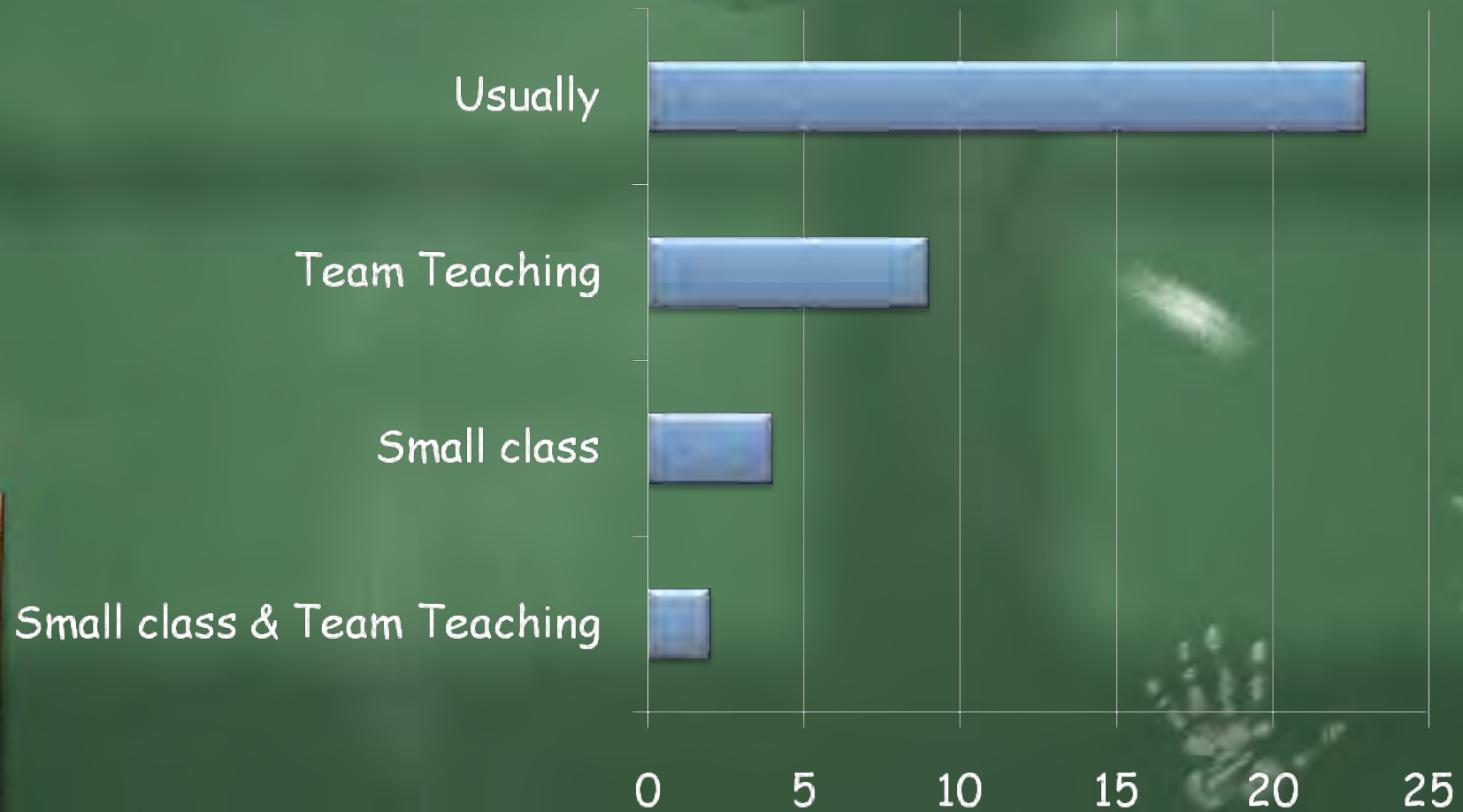
Grade for Science



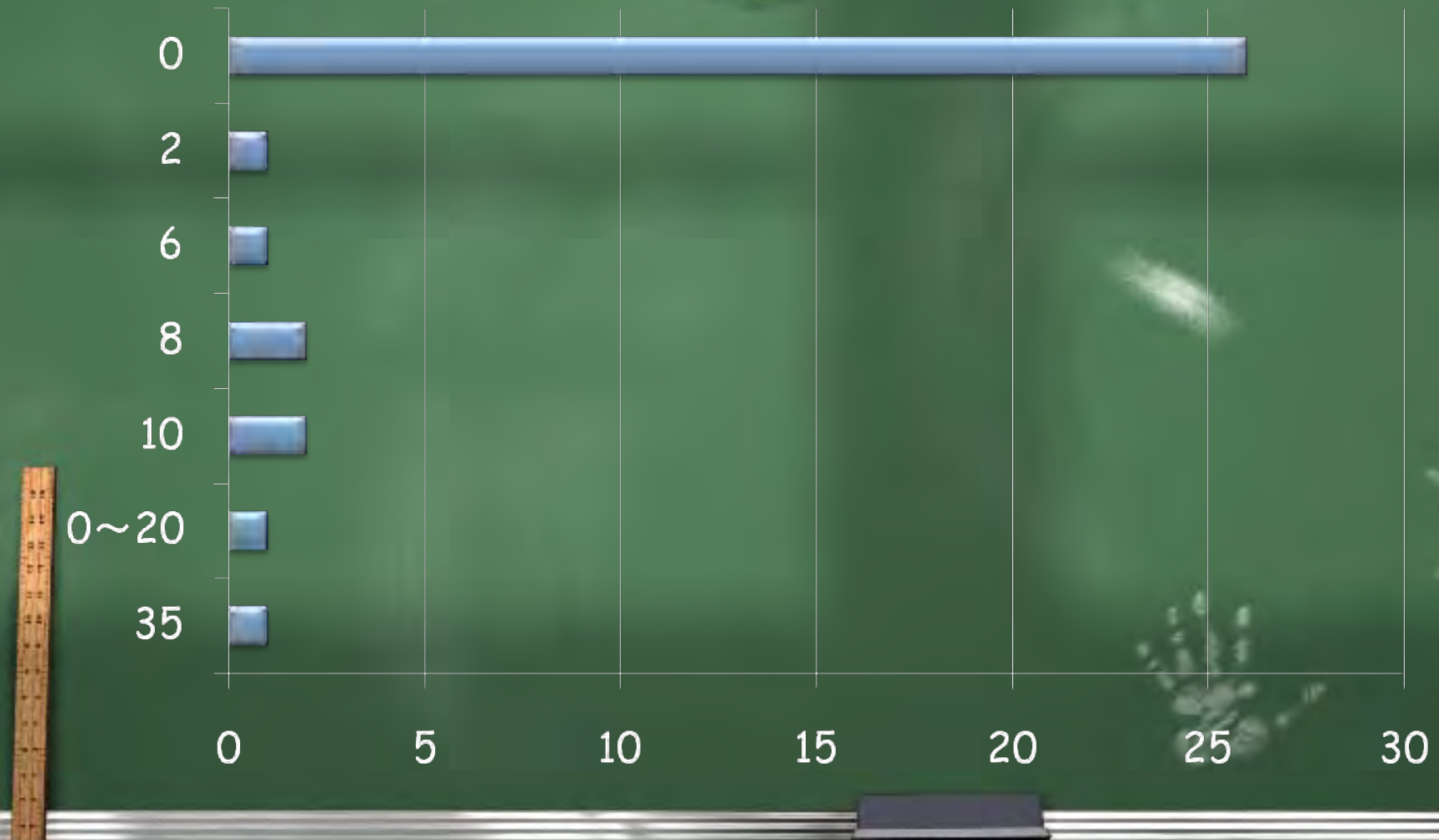
Selection system



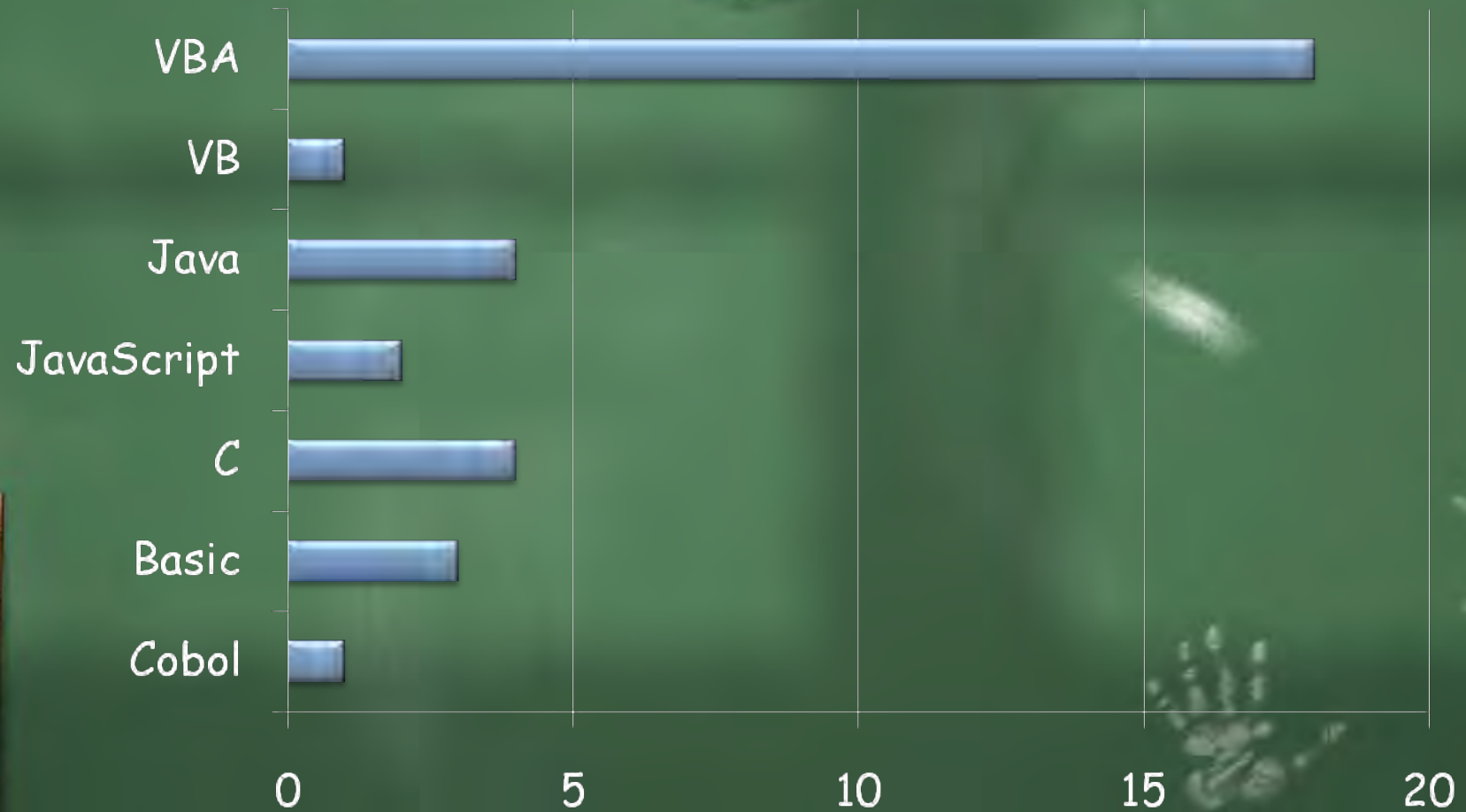
Class form



Programming classes



Programming Language





Conclusion & Bebras Contest in Japan

Conclusion

- Information Study is depreciated in Japan
- Realize the importance of Information Study
- Computer Science Education and Programming Education should be placed emphasis

Reference

- Original Slide: http://nakano.ac/current_status.pdf
- Subject 'Information Study' in next Course of Study for SH (Nakano): http://nakano.ac/next_CoS.pdf
 - Improvement of Academic Abilities (Courses of Study) by MEXT: <http://www.mext.go.jp/english/elsec/1303755.htm>
 - 2008 White Paper on Education, Culture, Sports, Science and Technology: http://www.mext.go.jp/b_menu/hakusho/html/hpab200801/1292564.htm
- The National Center for University Entrance Exams (大学入試センター, Daigaku Nyushi Center, DNC)
Programming language for Exams <http://www.dnc.ac.jp/modules/file/index.php?page=visit&cid=6&lid=823>

Results of Japan Bebras Trial 2010

✎ Elementary School	0
✎ Junior High School	119
✎ High School	208

Results of Japan Bebras Trial 2010

Level	A [6 / -2 / 0]				B [9 / -3 / 0]				C [12 / -4 / 0]			
Task	Plates	Watering	Apart- ment	Beaver- bot	Country classfy	Cards	Binary stroll	Slide	Beaver puzzle	Colors	Running	Coding pictures
Correct	110	106	113	101	100	92	93	56	41	42	56	62
Worng	9	13	5	16	14	26	21	57	61	46	39	28
Unanswer	0	0	1	2	5	1	5	6	17	31	24	29
Average	5.39	5.13	5.61	4.82	7.24	6.25	6.55	2.70	2.02	2.61	4.23	5.19

Results of Japan Bebras Trial 2010

Level	A [6 / -2 / 0]				B [9 / -3 / 0]				C [12 / -4 / 0]			
Task	Beaver-bot	Cards	Slide	Four Frogs	Running	Number plates	Paving tiles	Canoe trip	Two figures	Shortest route	Multiplu g	Sorting
Correct	166	100	111	119	116	135	79	148	114	93	134	99
Worng	38	103	92	80	86	66	125	56	90	110	69	101
Unanswer	4	5	5	9	6	7	4	4	4	5	5	8
Average	4.42	1.89	2.32	2.66	3.78	4.89	1.62	5.60	4.85	3.25	6.40	3.77

Conclusion

- Information Study is depreciated in Japan
- All the nation has to identify the importance of Information Study
- Computer Science Education and Programming Education should be placed emphasis

Reference

- Original Slide: http://nakano.ac/current_status.pdf
- Subject 'Information Study' in next Course of Study for SH (Nakano): http://nakano.ac/next_CoS.pdf
 - Improvement of Academic Abilities (Courses of Study) by MEXT: <http://www.mext.go.jp/english/elsec/1303755.htm>
 - 2008 White Paper on Education, Culture, Sports, Science and Technology: http://www.mext.go.jp/b_menu/hakusho/html/hpab200801/1292564.htm
- The National Center for University Entrance Exams (大学入試センター, Daigaku Nyushi Center, DNC)
Programming language for Exams <http://www.dnc.ac.jp/modules/file/index.php?page=visit&cid=6&lid=823>