# **Achievement by Content Domains**

Within physics, TIMSS Advanced provided results for three content domains— Mechanics and Thermodynamics, Electricity and Magnetism, and Wave Phenomena and Atomic/ Nuclear Physics. Most countries demonstrated strengths in one or two content domains compared to physics achievement overall, and weaknesses in one or two content domains.

# **Mechanics and Thermodynamics**

Relative Strength

4

Countries
Slovenia, Russian Federation,
Portugal, and
the United States

)

Countries
Norway, Lebanon,
and France

#### **Relative Weakness**

### **Electricity and Magnetism**

Relative Strength

2

Countries
Russian Federation
and Italy



3

Countries
Portugal, the United States, and France

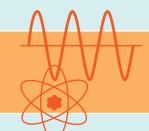
#### Relative Weakness

# Wave Phenomena and Atomic/Nuclear Physics

Relative Strength

2

Countries
Lebanon and
France



5

Countries

Slovenia, Russian Federation, Portugal, the United States, and Italy

#### Relative Weakness

### Differences reflected in Achievement by Gender

Achievement differences in content domains by gender reflect males' higher achievement in 8 countries in physics overall.

Number of Countries where Males had higher achievement than Females 8 Mechanics and Thermodynamics

4 Electricity and Magnetism

Wave Phenomena and Atomic/ Nuclear Physics Number of
Countries
where Females
had higher
achievement
than Males

Mechanics and Thermodynamics

O Electricity and Magnetism

Wave Phenomena and Atomic/Nuclear Physics

# **Achievement by Cognitive Domains**

TIMSS Advanced provided results for three cognitive domains—Knowing, Applying, and Reasoning. Although there was some balance in achievement across cognitive domains, most countries had at least one strength and one weakness compared to physics achievement overall.

# **Knowing**

Relative Strength

3

Countries
Russian Federation,
Norway, and Portugal



2

Countries
Slovenia and
Lebanon

### Relative Weakness

# **Applying**Relative Strength

relative

Countries
Slovenia and
Lebanon



4

Countries
Norway, Portugal,
the United States, and France

## Relative Weakness

**Reasoning**Relative Strength

4

Countries
Norway, Portugal, the
United States, and France

3

Countries
Slovenia, Russian Federation,
and Lebanon

# Relative Weakness

### Differences reflected in Achievement by Gender

Besides reflecting males' higher achievement in 8 countries in physics overall, achievement differences in the cognitive domains by gender show a male advantage, especially in Knowing and Reasoning.

Number of Countries where Males had higher achievement than Females 7 Knowing
4 Applying
8 Reasoning

Number of
Countries
where Females
had higher
achievement
than Males

ContingContin

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS Advanced 2015. http://timss2015.org/advanced/download-center/

