



ATMO sphere





Education and Training
Two Decades of Neglect

Ian Tuena

Current Courses Available

<p>CPC32413 Certificate III in Plumbing</p> <p>Basic skill set designed around compliance for small split AC systems up to 18 KW</p>	<p>UEE32211 Certificate III in Air-conditioning and Refrigeration</p> <p>Used in the majority of Tafe institutions</p> <p>Currently in Transition Phase</p>	<p>MEM30205 Certificate III in Engineering – Mechanical Trade (Refrigeration/Air Conditioning) –</p> <p>Primarily used in Western Australia</p>	<p>AUR20216 Certificate II in Automotive Air Conditioning Technology</p> <p>Very Basic and limited understanding of Refrigeration</p>
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Draft Mapping Comparison - Certificate III Refrigeration and Air Conditioning UEE32211, MEM30205 Certificate III in Engineering – Mechanical Trade (Refrigeration/Air Conditioning) , CPC32413 Certificate III in Plumbing, AUR20216 Certificate II in Automotive Air Conditioning Technology

CPC32413 Certificate III in Plumbing				UEE32211 Certificate III in Air-conditioning and Refrigeration				MEM30205 Certificate III in Engineering – Mechanical Trade (Refrigeration/Air Conditioning) – Western Australia				AUR20216 Certificate II in Automotive Air Conditioning Technology			
Required by ARC to allow plumbers to fit splits				Required by ARC to allow electricians to fit splits											
Code	Title	points	IWA Elect Reg Req	Unit code	Unit title	points									
UEENE1105A	Position, assemble and start up single head split air conditioning and water heating heat pump systems	30													
UEENE1172A	Recover, pressure test, evacuate, charge and leak test refrigerants – split systems	30													
UEENE101A	Apply Occupational Health and Safety regulations, codes and practices in the workplace	30													
UEENE102A	Prepare and connect refrigerant tubing and fittings	30													
Subjects not relevant to refrigeration course															
CPCPM2048A	Cut and join sheet metal	30													
CPCMS3021A	Assemble mechanical services components	30													
CPCMS3031A	Fabricate and install steel pressure piping	30													
CPCMS3033A	Install small bore heating systems	30													
Theoretical components															
UEENE107A	Use drawings, diagrams, schedules, standards, codes and specifications	4													
UEENE109A	Document and apply measures to control OHS risks associated with electrotechnology work	4													
UEENE025B	Verify functionality and compliance of refrigeration and air conditioning installations	4													
UEENE103A	Participate in refrigeration and air conditioning work and competency development activities	4													
UEENE104A	Establish the basic operating conditions of vapour compression systems	4													
UEENE111A	Establish the basic operating conditions of air conditioning systems	4													
UEENE142A	Commission air conditioning and refrigeration systems	4													
UEENE110A	Apply environmentally and sustainable procedures in the energy sector	4													
UEENE114A	Select refrigerant piping, accessories and associated controls	4													
Electrical components															
UEENE103A	Solve problems in ELV single path circuits	12													
UEENE105A	Fix and secure electrotechnology equipment	6													
UEENE113A	Find and rectify faults in motors and associated controls in refrigeration and air conditioning systems	6													
UEENE117A	Diagnose and rectify faults in air conditioning and refrigeration control systems	6													
UEENE194A	Solve problems in low voltage refrigeration circuits	6													
UEENE112A	Disconnect / reconnect composite appliances connected to low voltage installation wiring	3													
UEENE119A	Locate and rectify faults in low voltage composite appliances using set procedures	3													
UEENE102A	Attach cords and plugs to electrical equipment for connection to a single phase 230 Volt supply	10													
UEENE192A	Attach cords, cables and plugs to electrical equipment for connection to 1000 Va.c. or 1500 Vd.c. supply	3													
Refrigeration Trade Related Components															
MEM1009B	Install refrigeration and air conditioning plant and equipment	4													
CPCMS3036A	Install air handling units	4													
MEM18086B	Test, recover, evacuate and charge refrigeration systems	4													
UEENE107A	Install air conditioning and refrigeration systems, major components and associated equipment	6													
UEENE108A	Recover, pressure test, evacuate, charge and leak test refrigerants	6													
UEENE106A	Install refrigerant pipe work, flow controls and accessories	4													
UEENE102A	Fabricate, assemble and dismantle utilities industry components	4													
Refrigeration Trade Related Elective Components															
UEENE168A	Maintain microbial control of refrigeration and air conditioning systems	6													
UEENE115A	Resolve problems in beverage dispensers	6													
UEENE116A	Resolve problems in transport refrigeration systems	6													
UEENE117A	Resolve problems in ultra-low temperature refrigeration systems	6													
UEENE118A	Resolve problems in post mix refrigeration systems	6													
UEENE119A	Resolve problems in ice making systems	6													
UEENE120A	Resolve problems in industrial refrigeration systems	6													
UEENE131A	Diagnose and rectify faults in air conditioning and refrigeration systems and components	6													
UEENE166A	Resolve problems in dairy refrigeration systems	6													
UEENE171A	Resolve problems in refrigerated beverage vending cabinets	6													
UEENE001B	Maintain documentation	4													
UEENE002B	Source and purchase material/parts for installation or service jobs	4													
UEENE003B	Provide quotations for installation or service jobs	4													
UEENE010B	Deliver a service to customers	4													
UEENE010A	Use computer applications relevant to a workplace	4													
UEENE009B	Comply with scheduled and preventative maintenance program processes	4													
UEENE020B	Provide basic instruction in the use of electrotechnology apparatus	4													
Subjects not specifically related to refrigeration															
CPCMS3032A	Select and fit insulation and sheathing	4													
CPCRF3023A	Fabricate and install external flashings	4													
MEM05049B	Perform routine gas tungsten arc welding	4													
MEM05050B	Perform routine gas metal arc welding	4													
CPCPM2049A	Cut using oxy-LPG acetylene equipment	4													
CPCPB3015A	Install acoustic and thermal environmental protection systems	4													
CPCMS3041A	Install domestic solid fuel burning appliances	4													
CPCMS3034A	Install medical gas pipeline systems	4													
OH&S Components															
CPCCM2043A	Carry out WHS requirements	2													
HLTAID001	Provide cardiopulmonary resuscitation	2													
HLTAID003	Provide first aid	2													
CPCCOH1001A	Work safely in the construction industry	2													
CPCCM2008B	Apply OHS requirements, policies and procedures in the construction industry	2													
CPCCM2010B	Erect and dismantle restricted height scaffolding	2													
CPCCM3001C	Work safely at heights	2													
CPCCHS2001A	Operate elevated work platforms	2													
CPCCR3001A	Operate personnel and materials hoists	2													
CPCST2005A	Carry out load slinging of off-site materials	2													
NIICCM210A	Install trench support	2													
Essential Core Subjects required by tradesmen working on flammable refrigerants CO2 and ammonia. Urgent training required															
UEENE150A	Develop, enter and verify discrete control programs for programmable controllers	4													
UEENE174A	Apply safety awareness and legal requirements for hydrocarbon refrigerants	4													
UEENE175A	Service and repair self contained hydrocarbon air conditioning and refrigeration systems	4													
UEENE176A	Install and commission hydrocarbon refrigeration systems, components and associated equipment	4													
UEENE178A	Apply safety awareness and legal requirements for ammonia refrigerant	4													
UEENE179A	Repair and service ammonia refrigeration systems	4													
UEENE180A	Install and commission ammonia refrigeration systems, components and associated equipment	4													
UEENE182A	Repair and service secondary refrigeration systems	4													
UEENE184A	Apply safety awareness and legal requirements for carbon dioxide refrigerant	4													
UEENE185A	Repair and service carbon dioxide refrigeration systems	4													
UEENE186A	Install and commission carbon dioxide refrigeration systems, components and associated equipment	4													
UEENE188A	Repair and service self contained carbon dioxide refrigeration and heat pump systems	4													
UEENE196A	Operate Ammonia Refrigeration Plant	4													
Ancillary trade subjects															
MEM18001C	Use hand tools	2													
MEM18002B	Use power tools/hand held operations	2													

OVERVIEW

The Australian Industry and Skills Committee (AISC) has commissioned the transition of all UEE11 Electrotechnology Training Package components to the Standards for Training Packages 2012.

The Electrotechnology Industry Reference Committee (IRC) will have oversight of this project which will be facilitated by Australian Industry Standards in consultation with industry stakeholders. The project covers the transition of 87 qualifications, 75 Skill Sets and 612 Units of Competency.

The UEE11 Electrotechnology Training Package Transition Project has been divided into several sub projects Refrigeration is one of them .

QUALIFICATIONS - CURRENT TO NEW

Current Format

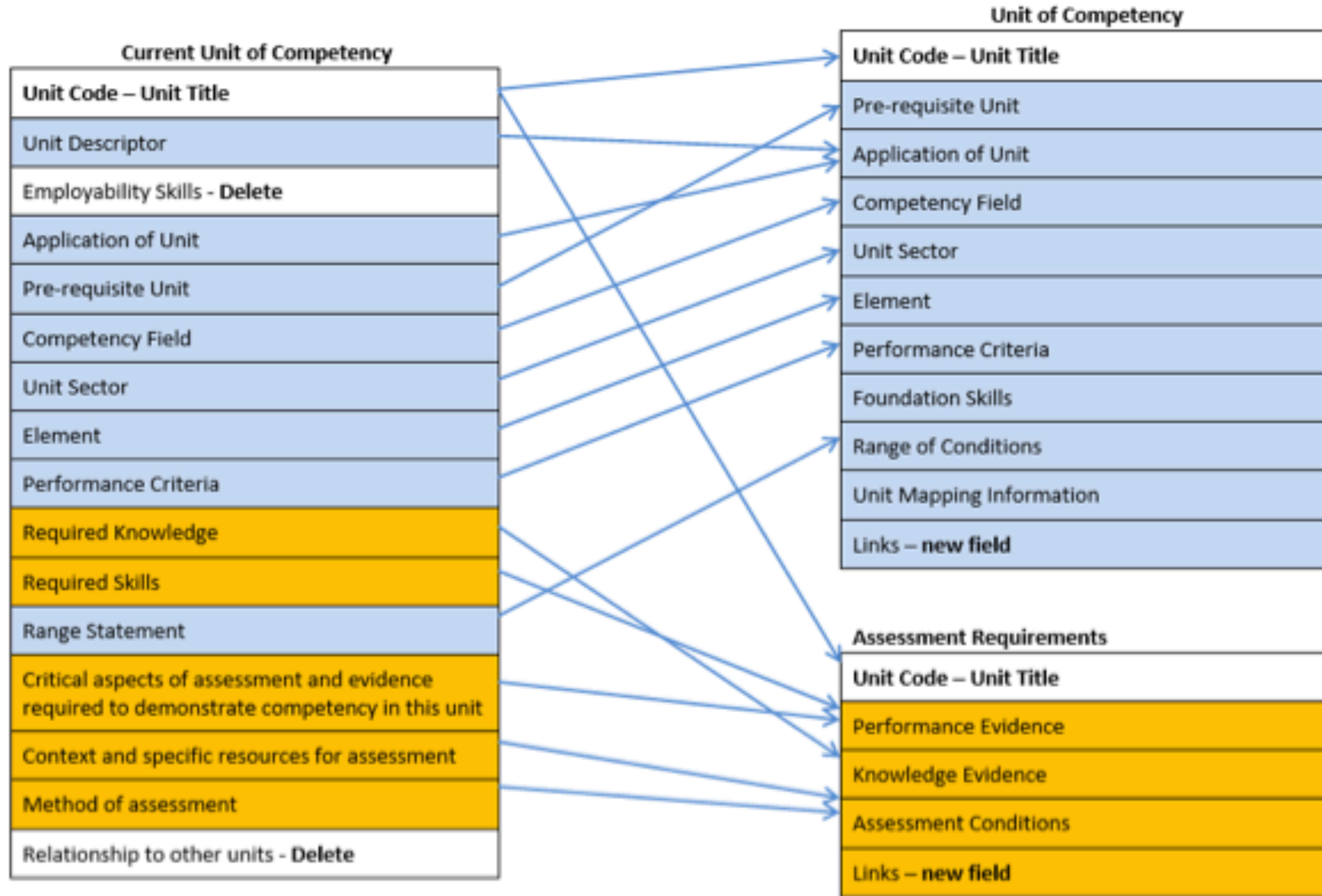
Qualification code and title
Descriptor
Pathways Information (Deleted)
Licensing /Regulatory Requirements
Entry Requirements
Employability Skills (Deleted)
Packaging Rules

New Format

Qualification code and title
Description
Entry Requirements
Packaging Rules
Mapping Information
Links



UNITS OF COMPETENCY



Are we simply rearranging the deck chairs ?



The Refrigeration and Air Conditioning TAC has finalised the draft Training Package materials for this sub project.

The draft materials will undergo an independent edit and quality assurance review.

Final drafts will be available for viewing after the finalisation of all sub-projects, including the review of 43 critical Units of Competency.

18 January 2018

Case for Change for review 43 Units approved

The Case for Change to review 43 Units of Competency has been approved by the Australian Industry and Skills Committee.

The Electrical TAC will commence reviewing these units as part of this project.

Are we on board the Costa Concordia ?



Agreements History:

➤ **Montreal Protocol:**

Discontinuing the use of ozone depleting refrigerants: CFC, HCFC.

➤ **Kyoto Protocol:**

Counts only HFC refrigerants based on 100 yr. GWP

➤ **Paris COP21 Paris 2015**

Limit global warming to < 2°C

➤ **Kilgali Announcement 2016**

Phase out of HFC refrigerants

**The HVAC&R Industry has embarked
on the greatest Change since 1935**

80% of the Industry doesn't know it

ARA and ARMA Road map for the RAC Industry to move **FORWARD!!**

- Review Current Courses CPC, MEM, UEE, AU
- Aligning all existing course modules into a form that allows for a consistent learning outcome across all streams overseen by refrigeration industry
- Identify shortfalls and upgrades required
- Engage curriculum writers to upgrade modules and insert new modules
- Develop common core modules required across all streams that will be co recognised by all ancillary trades
- Review modules and hours required then form a clear structure and pathway to progress from cert III, to cert IV , diploma , degree, masters, doctorate.
- Review and develop capstone testing by independent or industry body to ensure RTO standards are maintained at adequate levels.

ARA and ARMA Road map for the RAC Industry to move **FORWARD!!**

- Develop new Cert. III RAC course including base knowledge on All natural refrigerants, HFO, and interim HFC refrigerants
- Develop full flammable refrigerants course inclusive of HC, NH₃, HFC and HFO refrigerants to Cert. IV level
- Develop full CO₂ refrigerants course inclusive of Transcritical, Subcritical, Pumped Liquid, and Cascade systems to Cert. IV level
- Develop full Ammonia refrigerants course inclusive of single stage, two stage, flooded, low charge DX NH₃ systems to Cert. IV level

ARA and ARMA Road map for the RAC Industry to move **FORWARD!!**

- All of the new RAC course which will also form the pathway to higher education qualifications such as diploma, degree, masters, doctorate. The course content also forms the basis of the ancillary trade qualifications such as mech. services and automotive. This also ensures consistency of the subjects being taught in each trade as it is driven from the knowledge base of refrigeration.

Training packages review.

UEENEEJ174A	Apply safety awareness and legal requirements for hydrocarbon refrigerants	Elective - Group B Compulsory
UEENEEJ175A	Service and repair self contained hydrocarbon air conditioning and refrigeration systems	Elective - Group B Compulsory
UEENEEJ176A	Install and commission hydrocarbon refrigeration systems, components and associated equipment	Elective - Group B Compulsory
UEENEEJ178A	Apply safety awareness and legal requirements for ammonia refrigerant	Elective - Group B Compulsory
UEENEEJ179A	Repair and service ammonia refrigeration systems	Elective - Group B Compulsory
UEENEEJ180A	Install and commission ammonia refrigeration systems, components and associated equipment	Elective - Group B Compulsory
UEENEEJ182A	Repair and service secondary refrigeration systems	Elective - Group B Compulsory
UEENEEJ184A	Apply safety awareness and legal requirements for carbon dioxide refrigerant	Elective - Group B Compulsory
UEENEEJ185A	Repair and service carbon dioxide refrigeration systems	Elective - Group B Compulsory
UEENEEJ186A	Install and commission carbon dioxide refrigeration systems, components and associated equipment	Elective - Group B Compulsory
UEENEEJ188A	Repair and service self contained carbon dioxide refrigeration and heat pump systems	Elective - Group B Compulsory
UEENEEJ196A	Operate Ammonia Refrigeration Plant	Elective - Group B Compulsory

Where we need to go from here

What industry needs to jump on board and be proactive with.

- Letters to the Australian industry standards outlining what you seek as an industry stakeholder within training packages
- ARA Recommend a RAC training package to support industry needs.
- Industry to Unite and Demand Education Funding (approx 40% of current Licence fees is directed into consolidated funds this needs to be returned to the industry in the form of Re Training)
- Can Funds be re allocated from RRA \$63million investment account ?
- Could an Education Levey be placed on ALL refrigerants sold ?

The HFC phase out Train arrived at the Station on January first this year



The inevitable result if we don't act on education
NOW!!!





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Thank you very much!

